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# UNLOCKING THE POWER OF THE CRITICAL MIDDLE FOR SAFE, RESILIENT AND SUSTAINABLE FOOD SYSTEMS

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# EXECUTIVE SUMMARY

## Why the Critical Middle must be the next priority

Food systems investments and policies are structurally misaligned. While most public and donor resources focus on farmers and consumers, the binding constraints on food security, affordability, safety, and sustainability lie in the midstream: the actors who handle products postharvest, aggregate, transport, store, process, package, provide logistics services surrounding trading and distribute food.

In this paper, we argue that this segment should no longer be considered "hidden," as it is now widely recognised, but rather be reframed as the "Critical Middle"—a core and indispensable component of food systems whose performance determines system-wide outcomes.

At the same time, effective food systems transformation requires a holistic approach that considers all segments of the value chain—from production to midstream to consumption—rather than prioritising one over another. The Critical Middle should therefore be understood as a key leverage point that complements, rather than replaces, existing efforts focused on farmers and consumers.

These actors account for approximately 30–40% of value added and employment, as well as a significant share of food loss, waste, and greenhouse gas emissions across food systems, particularly in low- and middle-income countries (LMICs). Yet they remain systematically underfinanced, underserved, and weakly governed. As a result, food losses remain high, food safety risks persist, prices are volatile, and climate impacts intensify, even where production increases.

The Critical Middle is overlooked due to several misalignments:

A finance gap: Existing financial instruments are typically designed either for smallholder farmers or for large, formal firms, leaving midstream Micro, Small and Medium Enterprises (MSMEs) largely excluded.
Inadequate and uneven infrastructure: In many LMICs, the lack of modern infrastructure constrains productivity, quality improvement, and compliance with standards, while in more advanced markets, upgrading infrastructure is often needed to improve resource efficiency and sustainability.
Policy and regulatory gaps: Midstream activities are poorly measured and often invisible in public budgets and strategies. Responsibilities are fragmented across agriculture, trade, industry, infrastructure, health, and climate portfolios,

resulting in weak coordination and limited policy attention.

In addition, skills development and technical capacities across midstream operators remain underemphasised, limiting the ability to adopt improved technologies, meet standards, and ensure safe and efficient operations.

Unlocking the Critical Middle offers a high-leverage opportunity to transform food systems holistically. Targeted investments and support can simultaneously reduce postharvest losses and food loss and waste across the value chain, improve food safety, stabilise prices, create jobs, and lower emissions intensity—without requiring major expansion of agricultural land or production.

We propose six pillars, each with suggested key actions:

1. Invest in fit-for-purpose finance for midstream MSMEs through working capital, asset finance, guarantees, and blended finance instruments.
2. Upgrade shared infrastructure such as cold chains, storage, logistics, and market facilities, recognising that these investments can be capital-intensive and require coordinated public–private support.
3. Enable service delivery for quality control, packaging, food safety, skills development, and digital tools.
4. Reform regulation toward risk-based, performance-oriented approaches that support gradual upgrading while incentivising adoption of efficient and environmentally sustainable technologies.
5. Engage informal and semi-formal MSMEs through associations, cooperatives, and local governments, recognising both their essential role and the need for context-sensitive approaches.
6. Strengthen data, monitoring, and learning systems to make the Critical Middle visible and investable, while improving differentiation across country contexts.

To operationalise these actions, we propose a coordinated coalition of governments, donors, development banks, private sector, and implementing partners, focused on scaling proven interventions and aligning finance, policy, and delivery.

Unlocking the Critical Middle is essential to achieve food and nutrition security, climate resilience, jobs and inclusion, and sustainable economic growth.

# 1. INTRODUCTION

## 1.1 Food systems are off track and under growing climate stress

Global food systems are facing unprecedented pressures from climate change, population growth, and rising demand for safe and nutritious products that contribute to sustainable diets. Yet progress toward most Sustainable Development Goals remains insufficient, with approximately 828 million people experiencing severe food insecurity and 673 million people undernourished worldwide (FAO et al., 2025). These challenges are most acute in low- and middle-income countries (LMICs), where economic shocks, conflict, and climate stress interact to exacerbate vulnerabilities across food systems.

Climate change is increasingly destabilising food systems at multiple points simultaneously. Floods, droughts, heatwaves, and extreme humidity disrupt agricultural production and damage the infrastructure required to move, store, process, and distribute food. These shocks propagate across value chains, affecting food availability, affordability, and safety, and increasing the risk of supply disruptions and price volatility (WRI, 2024). As climate impacts intensify, weaknesses in food system performance become more visible and consequential.

Recent scientific assessments further highlight that food systems are not only vulnerable to climate change but are also a major driver of environmental degradation. Food systems contribute approximately 30% of global greenhouse gas emissions and are a leading cause of transgressions of planetary boundaries related to climate stability, land use, freshwater use, and nutrient cycles. Even under rapid global decarbonisation scenarios, current food production and consumption patterns could make it difficult to stay within the 1.5 °C warming limit; indeed, modelling suggests that food-system emissions alone could preclude achievement of the 1.5 °C target if current trends continue (Clark et al., 2020; Rockström et al., 2025). These findings underscore the urgency of systemic food system transformation.

## 1.2 The misalignment dilemma

Despite growing recognition of global challenges, prevailing efforts to transform the food system remain narrowly focused. Policy, investment, and research agendas have historically concentrated on farm-level production and consumer behaviour, assuming that improvements at these endpoints will translate automatically into better system-wide outcomes. However, food systems are shaped by interactions among all actors within the system, from farmers to midstream actors and consumers. Furthermore, policymakers, investors and service providers influence these interactions. Even though interventions at both production and consumption levels are essential, efforts that focus on only one stakeholder segment often miss or even destabilise these interactions. Systemic leverage points for improving the entire system lie in the actors and functions that connect food more efficiently between farms and forks.

Still, these actors and functions remain insufficiently reflected in current policy, investment, and research priorities. This gap reflects a deeper misalignment between the goals of food system transformation and the leverage points targeted by current policies and investments. While food systems are expected to deliver on multiple objectives—including hunger reduction, climate mitigation and adaptation, economic inclusion, and public health—policy and financial efforts frequently fail to engage critical parts of the system. This misalignment slows transformation and increases the risk that food systems will remain locked into trajectories that are environmentally unsustainable, socially inequitable and economically fragile. Addressing this challenge requires re-examining where food system interventions focus, how leverage points are identified, and which actors and functions are recognised as central to system performance.

## 1.3 Purpose of this document

This document repositions the “Critical Middle”—the midstream segment of food systems, defined and discussed in depth in Chapter 2—as a core and necessary focus for effective food system transformation. Accelerating this transformation requires explicit recognition of midstream actors to unlock system-level change.

This requires clearer understanding of this segment of the food system and this document contributes to this understanding by defining the ”Critical Middle” (hereafter used interchangeably with “Hidden Middle”) and its role within food systems (Chapter 2), examining why it remains systematically overlooked and constrained (Chapter 3), and synthesising evidence on the potential contributions of strengthened midstream functions to food security, nutrition, climate resilience, and inclusive economic outcomes (Chapter 4), before turning to leverage points for transformation and the implications for policy and collective action (Chapters 5 and 6).



Image credit: Arno Senoner/unsplash

# 2. WHAT IS THE CRITICAL MIDDLE AND ITS ROLE IN THE FOOD SYSTEM?

## 2.1 Defining the Critical Middle

Foundational research started by Reardon in 2015, characterised the midstream segment of value chains connecting production with consumption as the "Hidden Middle". While this term reflects its historical lack of visibility, this position paper emphasises its central role and refers to it as the "Critical Middle". Within this midstream, multiple activities, including processing, logistics, storage, and wholesale functions, support the connection between farms and forks (see Fig. 1).

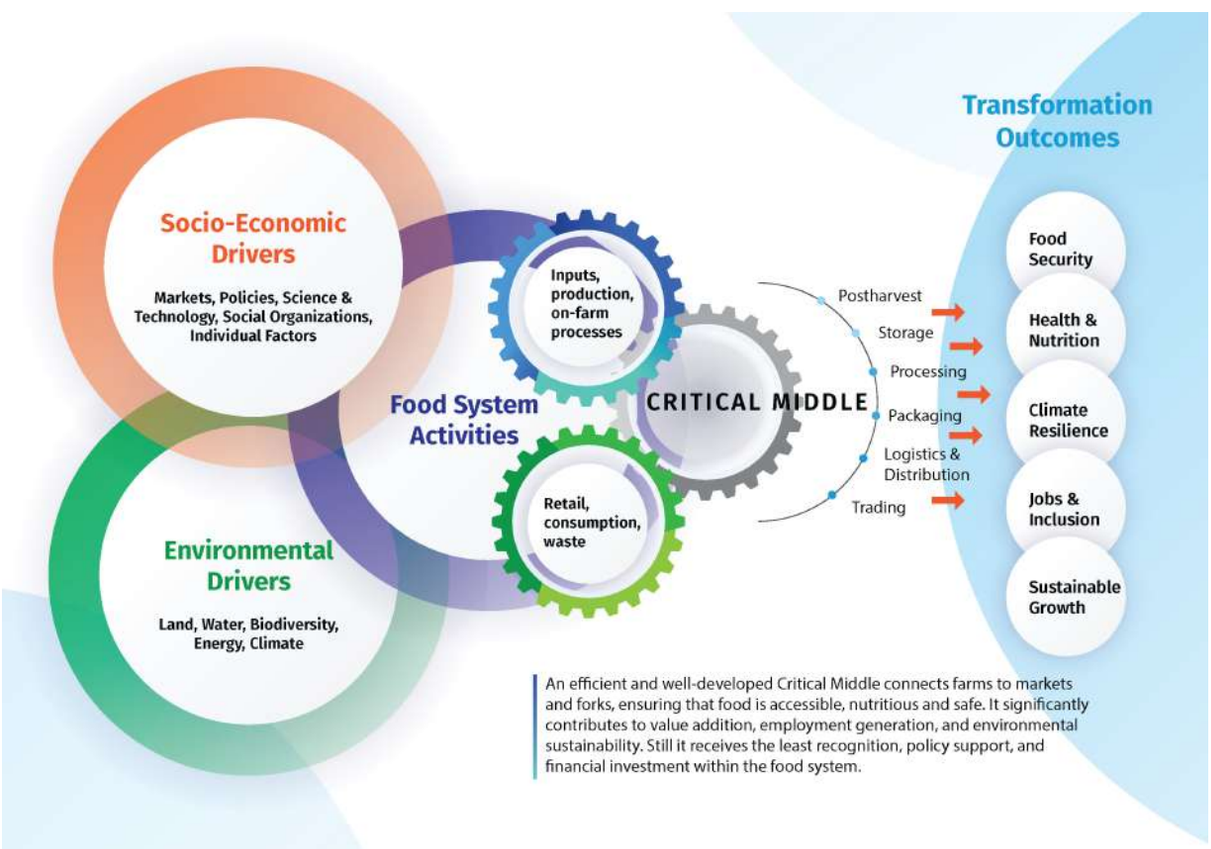



**Figure 1. The Hidden or Critical Middle as a catalyst for food system transformation.**

Midstream activities link production and consumption and are influenced by socio-economic and environmental drivers. The interconnected gears symbolise the need to better align and strengthen midstream functions to unlock the power of the Critical Middle in catalysing transformative food system outcomes.

According to Reardon (2015; 2021), the midstream activities typically account for 30–40% of value added and costs in food value chains. This makes midstream performance gains as important as increasing

production for enhancing food security. Efficiency improvements and innovation in the midstream segments, therefore, carry system-wide implications comparable to, and often greater than, those achieved through increased on-farm production alone.

## 2.2 The Critical Middle as an essential component of the Food System

The Critical Middle or the midstream functions as an essential yet systematically under-recognised component of food systems. This midstream is not a single category of actors, but a diverse ecosystem of enterprises and service providers. It includes cooperatives, traders, processors, transporters, warehouse operators, intermediate service providers and wholesalers operating at different scales and levels of (in)formality. In many contexts, these actors handle the majority of domestically traded food, shape market access for farmers, influence food quality and safety, and determine how food reaches urban and rural consumers. They also play a key role in enabling local food processing and the availability of nutritious products adapted to local markets.

Beyond physical infrastructure and assets, it encompasses the organisational, technological, financial, and service arrangements that enable food to be aggregated, transformed, stored, and distributed reliably and safely from production to consumption. This is also where significant innovation takes place, adding value to products and shaping how food systems evolve. Research capacities, including engineering and machinery development, therefore play an important role in strengthening midstream performance.

Where these midstream services and activities are absent, underdeveloped, or inefficient in specific value chains, they are often described as constituting a "missing middle," reflecting gaps or specific functions along the value chains. The midstream segments form the connective tissue of food systems, determining whether food moves efficiently across space and time, whether it retains quality and safety, and whether it ultimately reaches consumers at affordable prices.

## 2.3 The Critical Middle and informality

Informality is a persistent and structural feature of food systems, rather than a transitional phase of development in LMICs. Key value chain functions such as aggregation, trading and retailing are carried out predominantly by micro-, small-, and medium-sized enterprises operating under informal or hybrid institutional arrangements. These actors contribute substantially to employment generation and daily food provisioning for urban and peri-urban markets. Their deep embedding in local social and economic networks enables flexible coordination and rapid responses to changing conditions. During periods of disruption, informal traders and transporters frequently maintain food flows and affordability when formal supply chains fail, contributing to system stability and resilience (Skinner & Haysom, 2016; Liverpool-Tasie et al., 2020) but including challenges in terms of product quality and compliance. Estimates suggest that the informal economy contributes up to 60% of global GDP and accounts for over 80% of employment in Africa, with significant shares in Asia and Latin America as well (ILO, 2018; Termeer et al., 2024).

Attempts to eliminate or rapidly formalise these actors have frequently failed and, in some cases, even have undermined food access and livelihoods, highlighting the need for more nuanced and inclusive approaches (Mekonnen et al., 2022). For food systems transformation, development efforts need to engage with, rather than bypass, informal Micro, Small and Medium Enterprises (MSMEs) and practices, recognizing their adaptive, innovative, and entrepreneurial roles within food systems. Policies and interventions should support gradual upgrading by improving access to services, infrastructure and finance for local MSMEs, vendors, women, and youth while leveraging existing networks and market structures. Focusing solely on formalisation risks overlooking the strengths of informal systems, whereas balanced and context-specific approaches can align transformation efforts with broader sustainable development goals (Vorley, 2023).

## 2.4 The Critical Middle ecosystem

The different value chain functions covered by the Critical Middle cut across mandates and markets. Therefore, stakeholder mapping is essential to identify (i) who shapes midstream performance, (ii) where incentives align or conflict, and (iii) which coalitions are needed to unlock scaling.

A preliminary stakeholder mapping (UNIDO internal work in collaboration with IUFOsT) identified 211 organisations relevant to the Critical Middle ecosystem, its functioning, and the enabling conditions. The current mapping is geographically weighted towards global and Europe-based actors, indicating the need for deliberate expansion to national and local market institutions in LMIC contexts. The mapped stakeholders are organised into five interacting groups:

**1. Midstream operators (core Critical Middle actors)**

MSMEs and larger firms engaged in processing, packaging, cold storage, transport, wholesale markets, aggregation, and distribution. These actors directly determine food safety performance, product quality, price formation, supply reliability and food loss rates. Their primary constraints are working capital, energy and water reliability, compliance capacity, and access to shared infrastructure.

**2. Enabling service and input providers**

Providers of packaging materials, equipment, maintenance, laboratory and quality assurance services, energy solutions (including renewables), water and waste services, insurance, and digital platforms (payments, traceability, logistics management, market information). These actors shape the adoption of technology and upgrading pathways, but are often weakly linked to finance and to the realities of (informal) midstream MSMEs.

**3. Finance, investment and risk intermediaries**

Commercial banks, development finance institutions, impact investors, guarantee facilities, and blended finance platforms. They influence whether midstream enterprises can invest in equipment, cold chains, and compliance. A persistent bottleneck is access to finance for midstream MSMEs (working capital and asset finance), amplified by transaction costs, collateral requirements, and limited risk data.

**4. Policy, governance, multilaterals and standard-setting actors**

Decisions of ministries and authorities (agriculture, industry, trade, energy, infrastructure, health), regional bodies, food safety agencies, and standard-setting organisations. Shape the enabling environment for market infrastructure, licensing, inspections, quality standards, competition rules, and procurement.

**5. Knowledge, accountability and inclusion actors**

Research institutes, data and learning platforms, think tanks, consumer organisations, labour and market associations, and NGOs working on inclusion (women, youth) and decent work. These actors support evidence generation, capacity-building, and legitimacy—while also shaping whether transformation pathways include (informal and semi-formal) midstream MSMEs.

In the preliminary mapping, the largest clusters of actors relate to enabling service and input suppliers in food contact materials (47), policy/governance/multilaterals and standard settings (34), knowledge and accountability actors (28), and finance/investment (20). This functional stakeholder mapping supports the leverage points in Chapters 5 by clarifying which actors must align around financing models, shared infrastructure pipelines, upgrading pathways, and data systems.

# 3. WHY IS THE MIDSTREAM SYSTEMATICALLY OVERLOOKED?

Although a growing body of evidence demonstrates the centrality of midstream actors in food system performance, investment, research agendas and policy frameworks have not yet effectively mobilised their potential. Despite their critical role in linking production to consumption, midstream enterprises remain structurally under-recognised. Also, institutional fragmentation reinforces the blind spot. Responsibilities for agriculture, trade, industry, infrastructure, health, energy, and climate are typically distributed across separate ministries and agencies, each operating with distinct objectives, funding instruments, and accountability mechanisms. As a result, interventions tend to be siloed and poorly coordinated. Midstream activities, by their very nature, are cross-sectoral and system-connecting and often fall between institutional mandates such as the Ministries of Agriculture, Industry, Trade, Infrastructure, Energy, Health, Climate and are therefore insufficiently addressed through coherent, integrated policy and investment approaches.

The persistent neglect of the midstream can be traced to several interrelated misalignments:

1

## Finance and investment

Agrifood MSMEs typically require financing between USD 25,000 and USD 2 million for working capital, processing and storage assets, logistics, food safety compliance, and the adoption of energy-efficient or climate-smart technologies. Many MSMEs operating in the Critical Middle require finance solutions at the lower end of this range, where ticket sizes are often perceived as too small, too risky, or too administratively costly for commercial banks. This financing range is structurally underserved. The result is a persistent “missing middle” financing gap, particularly pronounced in regions such as sub-Saharan Africa and Southeast Asia (UNIDO & FAO, 2024; WRI, 2024). High collateral requirements, elevated transaction costs, limited credit histories, and a strong preference for export-oriented or hard-currency clients and formal enterprises further restrict access to capital for domestic midstream firms. These constraints limit not only firm-level growth, but also broader system-level improvements in efficiency, quality, and resilience.

2

## Infrastructure and logistics

In the absence of modern infrastructure, midstream enterprises face high operating costs, limited resilience to climate and market shocks, and restricted capacity to scale, innovate, or comply with evolving standards. Modern infrastructure, such as modern wholesale markets, cold-chain and processing hubs, aggregation centres and integrated logistics platforms, is critical for reducing food loss and waste, lowering emissions, improving food safety and traceability, expanding market access, and facilitating enterprises of varying sizes and levels of formality. The presence of such modern infrastructure also enables gradual upgrading rather than exclusion (FAO, 2024; Alacevich et al., 2024).

3

## Government policy and regulatory frameworks

The realities of domestic food markets in LMICs are that midstream activities are often embedded in hybrid, semi-formal, or informal economic arrangements. However, regulatory frameworks typically prioritise rapid formalisation over functional performance and gradual upgrading. This approach can exclude (informal) MSMEs from access to essential inputs and services, such as energy, water, land, and finance markets, rather than supporting incremental compliance with food safety, environmental, and labour standards. Evidence indicates that policy instruments such as credit guarantees, risk-sharing facilities, blended finance mechanisms, performance-linked incentives, and priority-sector lending can more effectively channel resources toward high-leverage midstream investments when they are designed around realistic operating conditions and capacities (OECD, 2021; UNIDO & FAO, 2024; FAO, 2024).

4

## Data and skills

Data gaps contribute to the under-recognition of the midstream, as many enterprises remain poorly captured in official statistics, productivity assessments, and food-system diagnostics, limiting both policy understanding and the design of targeted support measures (Reardon, 2015; OECD, 2021). At the same time, midstream enterprises in LMICs often face shortages in technical, managerial, and innovation capacities, limiting their ability to adopt improved technologies, comply with standards, and compete in higher-value markets. Skills gaps are particularly acute in food processing, logistics, equipment maintenance, food safety, and digital record-keeping, while limited participation in STEM and technical education further constrains the availability of skilled labour (UNIDO & FAO, 2024).

Across these domains, coordination failures within the broader food system ecosystem remain common. Finance is frequently disconnected from service provision, infrastructure investments are misaligned with enterprise needs, and regulatory frameworks fail to reflect the operational realities of midstream actors. At the same time, weak data systems and persistent skills gaps limit the visibility, productivity, and upgrading potential of domestic agrifood enterprises. Together, these misalignments help explain why the midstream remains under-recognised, under-resourced and insufficiently integrated into policy and strategies aimed at transforming food systems.



# 4. WHAT COULD BE ACHIEVED BY UNLOCKING THE CRITICAL MIDDLE?

## 4.1 A high-leverage segment for food system outcomes

A growing body of evidence from FAO (2024), UNIDO, WPO & WUR (2025), WRI (2024), and other international organisations demonstrates that the Critical Middle plays a decisive role in reducing food loss and waste, improving food safety, stabilising prices, and expanding access to nutritious foods. Where midstream segments function poorly, the consequences are immediate and systemic: higher transaction and consumer costs, elevated postharvest losses, increased greenhouse gas emissions, inefficient use of natural resources, and heightened food insecurity. The sections below examine these impacts across five dimensions.

## 4.2 Food security, food safety, and nutrition

The contribution of the Critical Middle to food security, food safety and nutrition is particularly pronounced. Midstream activities such as processing, packaging, cold storage, and logistics determine food availability, quality, safety, and affordability far more directly than production volumes alone. Without adequate storage, hygienic processing, functional cold chains, and appropriate packaging, food systems cannot reliably deliver safe food, regardless of how much is produced. Evidence from multiple contexts shows that weaknesses in postharvest handling and processing are major contributors to contamination, spoilage, and foodborne illness, particularly for perishable and animal-source foods. When food is unsafe, it cannot be considered food at all (FAO, 2019). Beyond preserving food quantity and safety, the Critical Middle plays a critical role in shaping the nutritional quality of diets. In particular, local food processing transforms raw agricultural products into nutritious, safe, and culturally appropriate foods that meet local demand. Through activities such as milling, drying, fermentation, and blending, midstream actors can enhance nutrient availability, extend shelf life, and reduce seasonal gaps in food access.

The Critical Middle is also central to addressing malnutrition through food fortification, one of the most cost-effective public health interventions available. Large-scale fortification relies on processing and distribution systems capable of integrating micronutrients into widely consumed staples such as flour, oils, salt, and dairy products. Reviews of global fortification programmes consistently show reductions in micronutrient deficiencies, including anaemia, iodine deficiency, and neural tube defects, when fortification is embedded within existing food supply chains (Ashraf, 2025). The Food Fortification Initiative, Future Fortified & the Global Alliance for Improved Nutrition brief (2024) and other global analyses confirm that fortification delivers high benefit–cost ratios, particularly in low- and middle-income countries where dietary diversity remains limited. Small and medium-sized enterprises are pivotal in this context. In many LMICs, MSMEs account for over 80% of food sales and dominate domestic processing and distribution markets. Creating enabling conditions for MSME participation in fortification is therefore essential for reaching vulnerable populations at scale. Box 1 shows an example that underscores how midstream investment choices influence not only nutrition outcomes but also employment, income generation, and market integration.

## Box 1. Food Fortification delivered by the Critical Middle

**Illustrative example**: Local fortification using spirulina and moringa in MSME food processing in Chad (Guyondet, 2025).

**How it works**
Evidence from Africa highlights the potential of locally sourced fortification inputs to further strengthen resilience and affordability. A case study from Chad shows how spirulina and moringa—locally available, nutrient-rich resources—have been used by MSMEs to produce fortified foods, reducing reliance on imported premixes while supporting local value chains. The study identifies logistics, quality assurance, and regulatory approval as key barriers, but also demonstrates that targeted support can enable scalable, nutrition-sensitive processing solutions.

**System impact pathway**
Midstream MSME processing and distribution → integration of fortification into staple and processed foods → improved micronutrient intake at scale → enhanced food security and nutrition outcomes, alongside local value addition and employment.

Private-sector analyses highlight that access to appropriate processing technologies, quality assurance systems, predictable demand, and risk-sharing mechanisms are key determinants of successful MSME engagement in fortification initiatives (WBCSD & Eat Well Global, 2025). Emerging evidence further highlights the potential of locally sourced fortification inputs to strengthen both nutrition outcomes and system resilience.

## 4.3 Climate mitigation and adaptation

Pre- and post-production activities across agrifood supply chains account for approximately 30% of global agrifood system greenhouse gas emissions (FAO, 2024), with midstream activities such as processing, refrigeration, transport, and packaging representing a share of these emissions. This positions the midstream simultaneously as a significant source of emissions and as a high-leverage opportunity for mitigation. Research increasingly points to the importance of climate-efficient midstream infrastructure and technologies, including renewable energy–powered cold chains, low-carbon logistics, and energy-efficient processing systems, which can reduce emissions while improving resilience to climate shocks (Alacevich et al., 2024; FAO & UNFCCC, 2024). In addition, reducing food loss and waste through improved midstream functions is one of the most immediate and cost-effective mitigation pathways, as it reduces the need for additional production while lowering embedded emissions across the value chain.

Midstream actors also play a critical role in scaling climate-smart practices across value chains. MSMEs operating in input and service markets deliver improved inputs, extension information, and harvest solutions, while linking producers to diversified markets. Grabs et al. (2024) show that these intermediaries support agrifood supply chain sustainability by transmitting sustainability information, enabling traceability, and connecting producers to responsible consumers in speciality markets such as cocoa and coffee. Adaptation and resilience solutions already account for about one-fifth of climate-related investments (WEF, 2025), highlighting the growing importance of midstream investments in building resilient food systems.

## 4.4 System resilience and crisis response

Experiences from high-income countries further underscore the importance of resilient midstream segments. Disruptions to processing, logistics, and wholesale markets often drive food availability challenges. During the COVID-19 pandemic, for example, bottlenecks led to supply disruptions and price volatility in Europe and North America despite continued agricultural production. More recent events also highlight the vulnerability of midstream systems to shocks. For example, the 2025 blackout in Spain and Portugal disrupted refrigeration and processing activities, with significant losses reported in sectors reliant on cold chains (Faus, 2025).

These disruptions have prompted renewed attention to food system preparedness, redundancy, and resilience, demonstrating that midstream vulnerabilities are a global concern, even though their impacts are most acute in low- and middle-income countries.

At the same time, the growing role of midstream actors in data collection is becoming increasingly important for monitoring emissions, adaptation practices, and social indicators. These functions can support transparency and reporting, provided that appropriate safeguards address issues of data ownership, consent, privacy, and fair compensation for producers. Effective collaboration among midstream actors, governments, and other stakeholders is therefore essential to ensure that data systems support equitable, safe, and effective scaling of environmentally sustainable practices.

## 4.5 Economic growth, employment, and livelihoods

The Critical Middle is also a key engine of economic growth, employment, and farmer livelihoods in both rural and urban areas. MSMEs engaged in processing, logistics, and distribution generate employment, stimulate demand for agricultural output, and support local and regional economic development. The Food Systems Economics Commission (FSEC, 2024) indicates that investments across food system transformation—including midstream processing, logistics, and market functions—deliver strongly positive economy-wide returns once economic productivity, health, and environmental benefits are accounted for, even though investment multipliers vary by context and intervention. Evidence from African food processing sectors reinforces this finding. For example, the VALUE-UP report shows that food processing and related midstream activities are among the most labour-intensive segments of agrifood systems, generating employment both within firms and through backward linkages to farmers and forward linkages to transport, retail, and service sectors. Employment impacts are strongest where processing MSMEs are oriented toward domestic and regional markets and supported by coordinated investments in infrastructure, skills development, and access to finance (Malabo Montpellier Panel, 2024). At the same time, global labour market trends highlight important structural constraints. Recent evidence shows that progress in employment quality has slowed, with high levels of working poverty persisting, particularly in low- and middle-income countries (ILO, 2026).

Country-level experience further demonstrates that isolated interventions yield limited results. Processing MSMEs expand and generate stable employment when policy frameworks address multiple constraints simultaneously, including unreliable energy supply, limited cold storage capacity, skills shortages, and constrained working capital. Where these conditions are met, midstream development contributes to higher rural incomes, stronger farmer–processor linkages, and more resilient local economies. These findings align with broader food systems research showing that strengthening midstream functions is central to inclusive growth and structural transformation. Berdegué et al. (2025) find that innovations in mid- and downstream segments often generate stronger positive impacts on employment and income than farm-level interventions alone, with many newly created jobs offering higher wages. At the same time, benefits are not evenly distributed, as better-paid downstream positions are more likely to be filled by men, underscoring the need for inclusive approaches to skills development and enterprise support.

Robust midstream systems support farmer livelihoods by improving market access and reducing income volatility. Efficient processing and logistics reduce

losses, smooth seasonal price fluctuations, and enhance resilience to climate and market shocks, enabling farmers to participate more reliably in domestic and regional markets. Digital technologies can also improve payment terms for farmers and lower-tier suppliers, strengthening liquidity and contributing to the long-term resilience of the overall economy. Recognising the midstream as a critical component of food systems, therefore, shifts the focus from isolated interventions toward overall system performance. Strategies aimed at reducing hunger, improving diets, lowering environmental impacts, and strengthening economic resilience cannot succeed without sustained investment in the midstream capacities that make food safe, affordable, nutritious, and reliably available at scale.

## 4.6 Equity and inclusion

The Critical Middle is also an important enabler of equity and inclusion within food systems. Women and youth play a prominent role in midstream activities such as processing, trading, packaging, and logistics, making the Critical Middle an important source of livelihood opportunities for groups that are often excluded from formal employment and asset-intensive segments of the food system.

IFPRI (2024) highlights that women-led enterprises are especially prevalent in food processing and trading, while young entrepreneurs are increasingly engaged in logistics services and food-related start-ups, reflecting the relatively low entry barriers and flexible organisational forms of midstream activities. Strengthening midstream capacities, therefore, has the potential to advance equity and inclusion outcomes alongside food security and economic resilience.



# 5. LEVERAGE POINTS TO STRENGTHEN THE CRITICAL MIDDLE

Strengthening the Critical Middle requires coordinated action across finance, services, infrastructure, technology, and governance. The barriers are rarely technical alone: adoption and scaling are constrained primarily by economic, institutional, and organisational factors, and by misalignment with operating realities. The following leverage points address these constraints.

## 5.1 Access to finance and services for the Critical Middle

Closing the persistent finance gap described in Chapter 3 is central to unlocking midstream potential. FASA (2026) estimates Africa's agri-SME financing gap at $75 billion, yet the 117 agri-SME funds currently fundraising aim to mobilise only around $6 billion—a fraction of what is needed. The structural mismatch (ticket sizes too large for microfinance, too small or risky for commercial banks) is especially acute in sub-Saharan Africa and Southeast Asia and requires dedicated instruments, as set out below.

At the same time, access to finance alone is insufficient. Strengthening the Critical Middle also requires investment in knowledge transfer, research, and innovation systems that enable midstream actors to adopt, adapt, and scale appropriate technologies and business models. Applied research institutions, universities, and private sector research and development actors play a critical role in developing context-specific solutions for processing, storage, packaging, logistics, and digitalisation. Stronger linkages between these actors and Critical Middle MSMEs are essential to ensure that innovations are demand-driven, affordable, and scalable, particularly in LMIC contexts (Ambler et al., 2024).

Knowledge transfer mechanisms such as technical assistance, extension services, vocational training, and innovation hubs are equally important. These systems help build the technical, managerial, and operational capacities of Critical Middle actors, enabling compliance with finance providers, food safety and environmental standards, improving resource efficiency, and supporting the adoption of new technologies. Innovation in the Critical Middle is not limited to technical solutions but also includes organisational and business model innovations such as cooperative aggregation, service-based cold chain provision, and digital platforms for logistics coordination and market access.

Some examples of approaches with demonstrated relevance for midstream actors:

- Supply chain finance and factoring, including reverse factoring anchored to wholesalers or institutional buyers, can reduce collateral requirements and improve liquidity for processors and traders (UNIDO & FAO, 2024).
- Blended finance facilities that combine public, concessional, and private capital have shown promise in de-risking investments in processing, cold chains, and logistics with long payback periods (FAO & UNFCCC 2024; Reardon et al., 2022).
- Guarantee schemes and risk-sharing mechanisms can crowd in domestic banks where perceived MSME risk remains high (WRI, 2024).
- Bundled financial and non-financial services, including technical assistance, business development, and food safety support, consistently outperform standalone credit in enabling MSME upgrading and repayment capacity (VALUE-UP, 2024).
- Fintech lenders in LMIC increasingly use alternative financing models such as app based

micro loans, underwriting clients with limited formal history using mobile money transaction patterns, repayment behaviour, and other consent based digital traces. These alternative data streams are converted into dynamic credit scores that better approximate cash flow and volatility for (informal) MSMEs, enabling access to finance.

Evidence from Uganda and Bangladesh further shows that weak access to digital financial services, insurance, and transaction platforms constrains the ability of midstream firms to manage price and climate risks, despite widespread use of mobile money at household level (Adong et al., 2025). Box 2 exemplifies a blended finance approach. Addressing these gaps is therefore as much about service ecosystems as about capital volumes.

## Box 2. Blended SME Finance for the Hidden or Critical Middle through specialised SME investment funds

**Illustrative example** of an Impact Fund Approach: Triple Jump - https://triplejump.eu/

**How it works**
Blended finance facilities channel public and concessional capital into specialised investment funds that provide debt and equity to small and medium-sized enterprises underserved by commercial banks. Rather than lending directly to firms, these facilities invest in local and regional financial intermediaries with deep market knowledge, which then finance midstream agrifood SMEs—such as processors, storage operators, logistics providers, and wholesalers.

**System impact pathway**
Public and development capital → blended investment funds → local financial intermediaries → midstream SMEs → knowledge transfer and R&I → investments in processing, storage, logistics → reduced food loss, safer food, stronger market access, and improved system resilience.



## 5.2 Technology, processing, and packaging solutions at scale

A wide range of technologies capable of improving midstream performance are already available, yet adoption among small and medium-sized enterprises remains low. Processing equipment, cold-chain systems, renewable energy solutions, and packaging innovations have demonstrated potential to reduce food loss, improve food safety, strengthen nutrition outcomes, and lower emissions. The main barriers to uptake are economic, institutional, and organisational rather than technical. Box 3 provides illustrative examples of technologies currently available to midstream actors and the key constraints limiting their wider adoption.

### Box 3. Scalable postharvest technology and packaging solutions

**Illustrative example**: Moisture management, handling, and packaging solutions in midstream value chains in humid climates and onion supply chains in East Africa (Adapted from Bradford et al., 2018; Yeshiwas et al., 2025).

**How it works**
Scalable postharvest solutions can reduce food loss and increase product value and marketability by integrating drying, improved handling, and appropriate packaging within midstream operations. In humid climates, the "dry chain" approach (combining effective drying with moisture-barrier packaging) prevents reabsorption of humidity, fungal growth, and quality deterioration without reliance on cold storage. In onion value chains in Ethiopia, improved sorting, grading, drying, and packaging practices adopted by traders, aggregators, and wholesalers help address high losses caused by moisture, bruising, and extended marketing periods. These solutions are typically implemented by stakeholders along the midstream and can be deployed incrementally with relatively low capital requirements. Complementary technologies, including aseptic processing and packaging, may further contribute to reducing losses in selected food value chains by improving product stability and shelf-life without relying exclusively on refrigeration.

**System impact pathway**
Improved postharvest technologies and handling practices → adoption by cooperatives or midstream SMEs in humid and perishable value chains → reduced spoilage, fungal contamination, and quality loss → lower postharvest losses and improved food safety → more stable market supply, higher effective output, and greater resilience of food systems.

Evidence shows that packaging plays a particularly important role in perishable value chains. UNIDO, WPO & WUR (2025) document that appropriate packaging solutions can halve food loss rates, while also improving food safety and extending shelf life. These effects are strongest when packaging is combined with improved postharvest handling, storage, and transport practices, underscoring the importance of integrated midstream interventions rather than standalone technology deployment.

Processing and storage technologies are equally critical. Scaled postharvest processing and cold storage reduce seasonal losses, stabilise supplies, and lower unit costs, contributing to more affordable and diverse diets in low-income settings (IFPRI, 2024). Renewable-powered cold chains and energy-efficient processing systems further enhance resilience to climate shocks while reducing emissions associated with refrigeration and transport (FAO & UNFCCC, 2024; Alacevich et al., 2024).

As detailed in Section 4.2, food fortification technologies embedded in existing processing and distribution systems have consistently reduced micronutrient deficiencies, with high benefit–cost ratios particularly in LMICs (Wesley & Horton, 2011; Food Fortification Initiative et al., 2024; IFC, 2018; Ashraf, 2025). Small and medium-sized processors are central to this effort, given their dominance in domestic food markets across low- and middle-income countries.

Urbanisation and changing consumer preferences are increasing demand for processed and packaged foods, yet local firms often lack the capacity to meet quality, safety, and packaging standards, leading to growing reliance on imports (Jenane et al., 2022). Scaling midstream technologies, therefore, requires financing models adapted to MSME cash flows, access to maintenance and technical services, and regulatory approaches that support incremental upgrading rather than exclusion.

## 5.3 Infrastructure

Infrastructure constraints—identified in Chapter 3 as a core barrier—continue to limit midstream performance across food systems. In many LMICs, processing, storage, logistics, and wholesale functions operate in environments characterised by unreliable energy and water supply, weak transport connectivity, limited cold-chain coverage, and poorly equipped wholesale markets. These deficits increase food loss, raise transaction costs, and reduce the competitiveness of domestic MSMEs (FAO, 2024). Box 4 shows how demand-led, climate-efficient cold chain investments can be designed as viable business cases rather than standalone assets, thereby reducing food loss, improving food safety, and enhancing the competitiveness of midstream MSMEs.

### Box 4. Strengthening Cold Chains through Scalable Midstream Business Cases

**Illustrative example**: Assessment Framework for Scalable Cold Chain Business Cases to Reduce Food Loss and Waste (Oostewechel & Hetterscheid, 2024).

**Relevance**
Cold chains can substantially reduce food loss and waste and improve food safety for perishable products, but many investments have underperformed because they were designed as technical solutions rather than economically viable, scalable business cases. Cold chains are a core midstream function, strengthening aggregation, processing, logistics, and compliance services. Demand is driven either by food safety requirements in animal-source value chains or by quality premiums and market access in fruits and vegetables. Successful cold chain investments anchor demand through off-take arrangements, match technology to value-chain maturity, and select use cases where costs are justified by compliance or price differentials. Flexible asset deployment, supportive enabling environments, and clear ownership and operational accountability are critical to avoiding underutilised infrastructure and ensuring sustained impact.

**System impact pathway**
Market pull and compliance requirements → demand-anchored cold chain business case → midstream operators/service providers invest and operate at high utilisation → reduced FLW and improved quality/safety → stronger market access and price stability → improved incomes, better diets, and lower emissions intensity (also through energy and refrigerants choices).

Recent analyses converge on the need for a new generation of climate-efficient agrifood systems infrastructure that supports midstream functions as shared public–economic assets rather than isolated private investments. Such infrastructure includes modern wholesale food markets, cold storage and processing hubs, logistics platforms, and agro-industrial zones making use of renewable energy sources designed to accommodate enterprises of different sizes and levels of formality (Alacevich et al., 2024). When well designed, these assets can reduce emissions, improve food safety, enable compliance with standards, and strengthen resilience to climate shocks.

Public–private partnerships play a central role in mobilising the patient and blended capital required for these investments. Evidence from Africa shows that Public Private Partnerships (PPPs) can crowd in private investment, lower risk, and ensure long-term operation and maintenance when public actors provide land, basic infrastructure, and regulatory clarity, while private partners contribute capital, technology, and management expertise (AGRA, 2024; VALUE-UP, 2024). Where PPPs fail, the literature points to weak governance, limited MSME inclusion, and a lack of alignment with national food system priorities rather than an absence of private interest.

Shared infrastructure is particularly important for smaller and informal MSMEs, for whom individual investment in cold storage, energy systems, or compliance facilities is often out of reach. Designing infrastructure that allows gradual upgrading and flexible access is therefore critical for inclusive food system transformation (Termeer et al., 2024).

## 5.4 Policy, governance, and market incentives

Despite their central role, midstream actors remain weakly embedded in food system policy frameworks. Climate adaptation plans, food security strategies, industrial policies, and trade regulations often focus on farms or consumers, leaving the actors that connect them insufficiently recognised or supported (WRI, 2024; Holmquist, 2024).

Some evaluated governance and policy priorities:

- Mainstreaming the Critical Middle into national food security, climate, and industrial strategies, recognising processing, storage, logistics, and wholesale as critical food system infrastructure also allowing access to affordable and nutritious food (FAO, 2024).
- Performance-oriented regulation that supports food safety, environmental standards, and labour conditions without relying on rigid formalisation requirements that exclude informal MSMEs (Termeer et al., 2024; Vorley, 2023).
- Targeted fiscal and financial incentives, including priority-sector lending, guarantees, and public procurement rules that reward nutrition, safety, and emissions performance rather than firm size or formality alone (UNIDO & FAO, 2024; VALUE-UP, 2024).
- Regional and market governance coordination, particularly on standards, packaging regulations, and logistics, to reduce transaction costs and fragmentation across value chains (FAO, 2024).

Hybrid governance approaches that combine formal regulation with recognition of elements of informal governance, market associations, and digital platforms are consistently identified as more effective than top-down formalisation in improving food safety, resilience, and inclusion (Termeer et al., 2024).

## 5.5 The Critical Middle as a systemic leverage point: potential system-wide impacts

Strengthening the Critical Middle delivers impacts that extend far beyond individual firms or value chains. Evidence across food security, climate, and development literature points to midstream investment as a systemic leverage point capable of generating reinforcing benefits across multiple objectives.

The Critical Middle shapes how food moves, how long it lasts, how safe it is, and at what price it reaches consumers. It is also a key space for coordination and communication across value chain actors, enabling information flows on prices, demand, quality requirements, and risks. As such, improvements in processing, storage, logistics, packaging, distribution, and communication can unlock cascading effects across the entire food system:

- Food security and nutrition improve through reduced postharvest losses, safer processing, expanded food fortification, and more stable availability of diverse foods (IFPRI, 2024; UNIDO, WPO & WUR, 2025; GAIN, 2024).
- Climate mitigation and adaptation are strengthened through lower emissions intensity, energy-efficient processing, renewable-powered cold chains, and diversified, shock-resilient supply chains (FAO, 2024; Alacevich et al., 2024).
- Economic growth and employment accelerate as processing, logistics, and distribution generate more and often better-paid jobs than primary production alone, particularly in rapidly urbanising economies (Berdegué et al., 2025; VALUE-UP, 2024).
- Farmer livelihoods and market stability improve when reliable aggregation, storage, and processing reduce price volatility and enable consistent market access, even during climate disruptions (WUR/EC, 2023; The State of Food Security and Nutrition in the World, 2025).
- Equity and inclusion advance when women- and youth-led MSMEs gain access to finance, infrastructure, and markets (IFPRI, 2024; Termeer et al., 2024).

The conclusions of the Food Systems Economics Commission suggest that the economic case for transformation is already favourable, yet political-economy frictions continue to slow the redirection of finance and policy attention toward high-impact nodes such as the midstream (FSEC, 2024). International policy discussions surrounding COP29 (Devex Partnerships, 2025) and COP30 have similarly emphasised the need to strengthen the “hidden middle” of food systems as a critical pathway for food security, climate resilience, and inclusive growth. Treating the middle as critical food system infrastructure, rather than a residual segment, is therefore a prerequisite for achieving resilient, low-emission and inclusive systems at scale.

# 6. FROM RECOGNITION TO COLLECTIVE ACTION

**Unlocking the Critical Middle is no longer optional. It is a strategic imperative.**

The evidence presented in previous chapters demonstrates that midstream actors are core components of food system performance. Yet their potential remains constrained by fragmented governance, limited finance opportunities, and limited integration into national and global food system strategies. Transforming food systems requires bringing the Critical Middle fully into view, financially, institutionally, and politically.

We propose six interdependent pillars for collective action, developed in detail below: rebalancing finance, scaling technology, enabling infrastructure, improving governance and policy alignment (including the promotion of public–private partnerships), generating more inclusive spaces for informal MSMEs and strengthening data and learning systems. These are not separate tracks: finance enables upgrading only when infrastructure and services are in place; innovation scales only when backed by governance and service delivery; inclusion depends on whether informal MSMEs are built into each pillar from the start.

Table 1 illustrates how strengthening the Critical Middle requires coordinated action across multiple stakeholder groups, with each leverage point dependent on alignment among operators, enablers, financiers, and public authorities.

**Table 1. Stakeholder groups and their alignment with key leverage points for strengthening the Critical Middle.**

| Pillars | Primary stakeholder groups involved | Role in strengthening the Critical Middle |
|---|---|---|
| Rebalancing finance for midstream functions | Finance and investment actors; Midstream operators; Enabling service providers | Design and deploy blended finance, guarantees, and supply-chain finance adapted to MSME cash flows; bundle capital with technical assistance, food safety upgrading, and business services. |
| Scaling technology, processing, and packaging solutions | Midstream operators; Technology and packaging providers; Standards and certification bodies | Enable adoption of fit-for-purpose processing, cold chain, and packaging solutions; align technology with food safety, nutrition (including fortification), and environmental performance requirements. |
| Investing in enabling infrastructure | Public authorities; Private operators; Finance and investment actors | Plan, finance, and operate wholesale markets, cold storage and processing hubs, logistics platforms, and renewable-energy systems through inclusive public–private partnerships. |
| Policy, governance, and market incentives | Public authorities; Standards and regulatory bodies; Market and industry associations | Develop performance-oriented regulation, risk-based food safety systems, and fiscal or procurement incentives that reward outcomes rather than firm size or formal status. |
| Recognising and engaging informal MSMEs | Local governments; Market associations; informal SME networks; Inclusion-focused organisations | Support gradual upgrading, access to services and infrastructure, and improved working conditions for informal and hybrid enterprises without forced formalisation. |
| Strengthening data, evidence, and learning systems | Research institutes; Digital platform providers; Public authorities; Midstream operators | Generate and use data on food flows, losses, prices, emissions, and adaptation practices while ensuring safeguards for data ownership, consent, and fair compensation. |

This Theory of Change (ToC) begins with the recognition that midstream actors are essential to food system performance, yet they remain under-supported in finance, policy, infrastructure, and strategy. The framework argues that a stronger middle can contribute to four long-term impacts: food security and nutrition, climate-resilient food systems, inclusive economic growth, and sustainable and efficient value chains. To achieve this, action is required across the six connected pillars described below. In this way, a stronger midstream can reduce food loss, improve food quality and safety, stabilise supply, expand economic opportunity, and support more resilient and sustainable food systems.

A separate output level has been deliberately omitted from this ToC (Figure 2). The main interest is not in tracking the exact number of partnerships, platforms, facilities, or instruments established, but in understanding whether these collective actions strengthen midstream performance and contribute to wider food system change.

Rebalancing finance means providing midstream enterprises with instruments that fit their cash flows, risk profiles, and investment horizons: blended finance, guarantees, supply chain finance, and risk-sharing mechanisms, combined with technical assistance, food safety support, and business development services. Finance alone is not enough—it becomes effective only when enterprises also have access to infrastructure, services, and stable market opportunities.

Enabling infrastructure—wholesale markets, cold storage, logistics hubs, and renewable energy systems—reduces losses, improves food safety, and lowers costs for many enterprises at once. Infrastructure must be designed for inclusive access, not only for larger firms, and backed by maintenance, quality assurance, skills development, and advisory services. Without these complements, physical assets alone will not translate into sustained performance gains.



**Figure 2. Theory of Change with activities per pillar is envisioned for the stakeholders involved.**

| | RESULTS | OUTCOMES | ACTIVITIES |
|---|---|---|---|
| **Rebalancing finance toward midstream functions** | • Food security & nutrition improved through better MSME performance<br>• Inclusive economic growth via expanded access to capital & services<br>• Sustainable, efficient value chains supported by fit-for-purpose finance | • Better access to finance & services<br>• MSMEs absorb and repay investment<br>• Upgraded enterprise capacity | • Deploy blended finance facilities & credit guarantees adapted to SMSME cash flows<br>• Introduce risk-sharing mechanisms & supply-chain finance to reduce collateral burden<br>• Bundle capital with technical assistance, food safety upgrading & business development services<br>• Design instruments that recognise hybrid & informal operating models |
| **Investing in enabling infrastructure and services** | • Climate-resilient food systems enabled by efficient, low-emission infrastructure<br>• Food loss reduced at scale; system resilience during crises enhanced<br>• Inclusive economic growth through shared public–economic assets | • Cold chain utilisation increases; post-harvest losses decline<br>• Processing & packaging adoption improves food safety & quality<br>• Shared infrastructure lowers costs for multiple enterprises simultaneously | • Plan & co-finance wholesale markets, cold storage hubs & logistics platforms through PPPs<br>• Install renewable-energy-powered processing & storage facilities<br>• Deliver complementary services: maintenance, quality assurance, skills & advisory support<br>• Design infrastructure for inclusive access across firm sizes & formality levels |
| **Scaling proven innovations in midstream functions** | • Food safety & nutrition outcomes improved at population scale<br>• Carbon emissions from midstream operations reduced<br>• Sustainable value chains built on scalable, proven innovation | • Proven technologies adopted at scale across midstream actors<br>• Food safety, nutrition outcomes & environmental performance improve<br>• System-wide benefits exceed initial investment costs | • Coordinate financing for fit-for-purpose processing equipment & cold chain technology<br>• Deploy resource-efficient packaging solutions aligned with food safety & nutrition standards<br>• Co-develop regulatory pathways enabling gradual technology upgrading for MSMEs<br>• Integrate midstream actors into national & sectoral innovation processes |
| **Building inclusive PPPs** | • Food security strengthened through competitive, well-governed markets<br>• Inclusive economic growth with benefits reaching small & medium enterprises<br>• Sustainable value chains anchored by accountable public–private governance | • SMEs upgraded & on pathways toward greater formality<br>• Farmer incomes & food availability improve through PPP-enabled markets<br>• Enterprise competitiveness strengthened; accountability mechanisms active | • Structure PPPs with clear governance, inclusive SME access & accountability mechanisms<br>• Public actors provide land, basic infrastructure & long-term regulatory vision<br>• Private partners contribute capital, technology & operational expertise<br>• Align PPP mandates with national food system priorities & sustainability goals |
| **Recognising and engaging informal MSMEs** | • Equity & inclusion advanced; vulnerable actors benefit from food system growth<br>• Food security maintained through stable supply from informal MSMEs<br>• Resilient food systems built on diverse, adaptive enterprise base | • Informal MSMEs improve food safety compliance & access services<br>• Gradual, voluntary formalisation pathways adopted<br>• Affordable food supply maintained; employment in informal sector protected | • Engage informal MSMEs through market associations, trade cooperatives & existing networks<br>• Extend targeted food safety support & financial service access to informal MSMEs<br>• Design incentives that reward performance without requiring coercive formalisation<br>• Support improved working conditions & labour standards in hybrid enterprises |
| **Strengthening data, evidence, and learning** | • Food systems governance strengthened through data-driven decision-making<br>• Climate-resilient & inclusive food systems enabled by adaptive learning<br>• Systemic investment prioritisation drives long-term food system transformation | • Improved investment decisions & policy design guided by evidence<br>• Accountability strengthened through transparent monitoring<br>• High-impact midstream investments identified & prioritised for scaling | • Build shared data platforms capturing food flows, prices, losses & emissions<br>• Establish learning & feedback systems with data ownership & consent safeguards<br>• Run coordinated multi-stakeholder platforms to translate evidence into policy<br>• Align data systems with national & global food system monitoring frameworks |

Scaling proven innovations requires moving beyond proof of concept to adoption at scale. Many relevant technologies already exist—cold storage, fit-for-purpose processing equipment, improved packaging—but uptake remains low due to economic and institutional barriers. Coordinated finance, after-sales support, realistic regulation, and gradual upgrading pathways are all needed. Innovation scales when linked to viable business models and service systems, not when introduced as a stand-alone solution.

Public–private partnerships connect finance, infrastructure, and innovation where investment costs are high and cross-actor coordination is essential. Their role is to mobilise capital, share risk, and align public goals with private capabilities. Effective PPPs require clear governance, transparency, accountability, and explicit mechanisms to include midstream MSMEs—not only large formal firms.

Recognising and engaging informal MSMEs means moving beyond coercive formalisation toward gradual upgrading through market associations, cooperatives, service access, food safety support, and incentives that improve performance over time. This pillar is closely linked to all others: finance, infrastructure, innovation, and PPPs must all be designed so that informal MSMEs are not excluded from participation.

Strengthening data, evidence, and learning means ensuring that better data on food flows, losses, prices, emissions, and enterprise performance is actively tied to decision-making. It should be built into financing systems, infrastructure planning, innovation programmes, and partnership governance—with clear safeguards around ownership, consent, and fair use.



# 7. CONCLUSION: UNLOCKING THE CRITICAL MIDDLE

Unlocking the power of the Critical Middle for safe, resilient and sustainable food systems is essential to shaping food system outcomes. The Critical Middle—encompassing postharvest handling, processing, storage, logistics, packaging, and trade—collectively determines the capacity of food systems to deliver safe, nutritious, affordable, and resilient food.

Discussions held at COP30 (2025) emphasised the need to move from promises to action. Achieving the Sustainable Development Goals requires integrated action across climate, food security, nutrition, and economic development, with increased attention to infrastructure, small and medium-sized enterprises, and place-based solutions. The discussions also highlighted the role of collective action. The proposal to establish a Critical Middle Coalition was broadly welcomed, with a clear expectation that it would serve as a platform for coordination, scaling, and implementation rather than an additional discussion forum. Participants emphasised the importance of linking the coalition to existing global processes (such as national food system pathways, climate action agenda, etc.) while maintaining a strong focus on concrete outcomes at the country and value-chain level.

### Why Act Now?

- **Hunger cannot wait**: At current trends, hunger levels will be higher in 2030 than in 2015 (UNIDO & FAO 2024).
- **Climate cannot wait**: Food systems already generate one-third of emissions. The critical middle offers one of the fastest pathways to decarbonisation.
- **Equity cannot wait**: Women and youth entrepreneurs risk being locked out of growth if midstream SMEs remain neglected.

Recognising the Critical Middle as essential food system infrastructure directs attention toward coordinated investment in finance, services, technology, and governance. This approach supports the scaling of effective solutions, strengthens public and private sector collaboration, and enables inclusive participation by farmers, small and medium-sized enterprises, women, and youth across diverse contexts.

Unlocking the Critical Middle is not an isolated agenda. Unlocking the Critical Middle provides a practical pathway to advance these objectives simultaneously. Strengthening this connecting layer of food systems will be critical to building sustainable systems that are more resilient, more equitable, and better equipped to meet the challenges of the upcoming decades.



Image credit: Thomas Le/unsplash

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