

Investing in the 'critical middle' of food systems

Executive summary

The 'critical middle' of food systems, comprising processing, storage, packaging, logistics and distribution, is essential infrastructure connecting agricultural production with consumers. Together, these functions account for up to 40% of value add[1] and 22% of emissions[2] in food systems and play a decisive role in food security, affordability, resource efficiency, resilience and sustainability. Yet the 'critical middle' remains structurally underfinanced, under-measured and under-prioritised.

The priority is no longer simply to recognise its importance. **The challenge now is to finance it, measure its impact and scale proven solutions.** Investments across the 'critical middle' can strengthen food security, improve resource efficiency, reduce food loss and waste, enhance climate resilience and **unlock new opportunities for small and medium sized enterprises (SMEs).**

Tetra Pak has five policy asks to move the 'critical middle' from recognition to implementation, at scale:

1. **Establish dedicated financing pathways for SMEs to invest in 'critical middle' infrastructure**
   Proven solutions already exist to make food systems more efficient, resilient and sustainable, but financing barriers prevent many SMEs from adopting them. Closing this investment gap is critical to scaling technologies that reduce food loss and emissions, improve resource efficiency and strengthen food security.
2. **Integrate food security into climate transition-related decision making**
   Food security should be systematically embedded in climate and sustainability policymaking to avoid unintended impacts on food availability, affordability, access and nutrition. A food security test could help identify and mitigate potential trade-offs, while national climate and resilience plans should recognise agri-food processing, storage, packaging and distribution as strategic infrastructure for safeguarding food security.
3. **Recognise agri-food processing, packaging and distribution as essential food systems infrastructure**
   Food security depends on the infrastructure that enables food to be processed, protected, stored and distributed safely and efficiently. Governments should recognise processing, aseptic technology, storage, packaging, cold chains and logistics as essential food systems infrastructure, and support integrated solutions across the value chain to strengthen resilience.
4. **Make the 'critical middle' visible, measurable and investable**
   The 'critical middle' must be visible and measurable to become investable. By integrating indicators for processing, storage, packaging and distribution into food systems frameworks, governments can better identify infrastructure gaps, measure impact, and direct investment to secure more resilient and efficient food systems.
5. **Strengthen public-private partnerships that scale implementation**
   Public-private partnerships can mobilise finance, technology and expertise to strengthen 'critical middle' infrastructure. By catalysing co-investment and expanding SME access to resources, they can accelerate the scale-up of proven solutions across food systems, for system-wide impact.

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The 'critical middle': from recognition to implementation

The middle of the food value chain has often been described as the 'hidden middle'[3]. Today, its importance is increasingly recognised. Processing, storage, packaging, logistics and distribution form the 'critical middle', the essential infrastructure that ensures food can move safely, efficiently and affordably from farms to consumers.

Its performance has implications across entire food systems. Stronger 'critical middle' infrastructure can reduce post-harvest losses, improve food safety and nutrition, connect farmers to markets, increase resource efficiency, strengthen resilience and support economic development. Together, these functions account for up to 40% of value add and 22% of emissions in food systems.

The need for action is clear. Climate change, population growth and geopolitical shifts are putting food systems under increasing pressure. At the same time, food systems account for more than one-third of global greenhouse gas emissions[4], while food loss and waste continue to undermine food security, economic development and climate objectives. Evidence increasingly shows that food systems transformation cannot be achieved through primary production alone.

The 'critical middle' is therefore no longer hidden. The challenge is to move from recognition to implementation: financing it, measuring its impact and scaling solutions that are available today.

1

Establish dedicated financing pathways for SMEs to invest in 'critical middle' infrastructure

Increase the share of climate and development finance directed towards food systems, with dedicated financing pathways that enable SMEs to invest in the 'critical middle', including agri-food processing, storage, fit-for-purpose packaging, logistics and infrastructure such as cold-chain and aseptic technologies.

Since an estimated $430–$500 billion is needed annually to build secure, sustainable and resilient food systems[5], these pathways should be reinforced through guarantee facilities, blended-finance mechanisms and public-private investment platforms that reduce investment risk and improve SMEs' access to affordable, longer-term capital.

2

Integrate food security into climate transition-related decision making

Embed food security and food systems resilience into national climate adaptation and transition planning, including investment in agri-food processing, storage, packaging and distribution infrastructure.

These should be recognised as strategic resilience assets that help maintain the availability, accessibility and stability of food supplies in the face of climate-related disruptions.

Introduce a food security test to systematically assess potential impacts on food availability, affordability, accessibility and supply-chain resilience before policies are adopted.

This would help identify and mitigate unintended consequences and ensure that climate objectives are pursued without compromising food security.

3

Recognise agri-food processing, packaging and distribution as essential food systems infrastructure

Treat processing, aseptic technologies, storage, packaging, cold chains and logistics as essential infrastructure for food security and resilience.

Prioritise investment in integrated solutions across the 'critical middle', from aggregation and handling to processing, packaging and distribution, to strengthen food value chains and maximise system-wide impact.

Embed these investments and food loss reduction into zero waste, food security and climate adaptation strategies.

Within this approach, recognise fit-for-purpose packaging as an important tool for reducing food loss and waste, extending shelf life, ensuring food safety and strengthening resilience across food value chains.

5

Strengthen public-private partnerships that scale implementation

Create national and regional public-private partnership platforms that bring together governments, development finance institutions and private sector actors to mobilise investment and accelerate implementation across the 'critical middle'.

These partnerships should enable co-investment in post-harvest loss reduction, agri-food processing, storage, cold chains, packaging and distribution infrastructure. By sharing risk, aligning public and private investment and bringing solutions to scale, they can strengthen food security and build more resilient food systems.

4

Make the 'critical middle' of food systems visible, measurable and investable

Develop and incorporate 'critical middle' indicators into national food systems pathways, climate adaptation and finance frameworks.

Measure outcomes such as post-harvest loss reduction, sustainable agri-processing capacity, aseptic/ambient distribution, cold-chain access, SME participation and resilient food distribution.

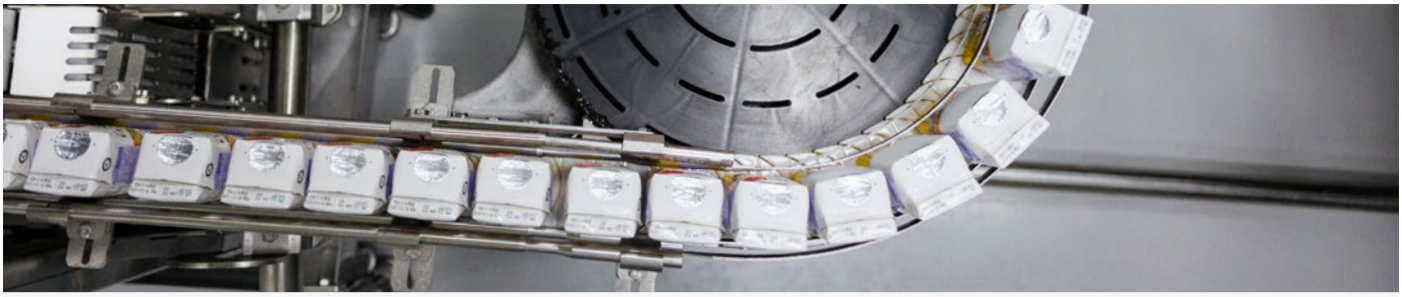
Better measurement can help identify infrastructure gaps, demonstrate impact and create a stronger basis for directing public and private investment towards the 'critical middle'.



Investing in the 'critical middle' unlocks broader benefits

Investing in the 'critical middle' of food systems, whether processing, storage, transport or distribution, offers high returns while delivering wide-ranging benefits. Strengthening this segment can improve food security and nutrition, reduce food loss and waste, stabilise prices, boost farmer incomes, and create jobs – particularly by supporting SMEs which are the backbone of food systems. It also plays a critical role in decarbonisation, with efficient infrastructure and technologies helping to lower emissions and ease pressure on natural resources. In short, unlocking the 'critical middle' means unlocking healthier populations, stronger economies and a more sustainable planet.





The 'critical middle' offers high return on investment

- **Enhanced food security and nutrition**: Inefficient food systems contribute to hunger, malnutrition and food price volatility. Protecting food during processing, or improving packaging and storage to retain nutritional value, would help to ensure a healthier population and reduce state healthcare costs.[6] Provisional evidence suggests healthy diet costs are much higher in countries with poor transport, storage, and logistics infrastructure and services.[7]
- **Reduced food loss and waste:** Globally, more than one-third of all food produced is either lost or wasted,[8] even though 2.4 billion people struggle to get regular access to sufficient food.[9] Investing in efficient processing and packaging technologies, transportation and infrastructure would help to make more food available without increasing production costs. Studies estimate that every $1 invested in reducing post-production losses can yield a $5 to $10 return through increased food availability and reduced pressure to expand agricultural land.[10]
- **Food price stability:** Inefficient value chains in food systems can lead to volatile food prices, disproportionately impacting low-income populations. Investments in more efficient food processing technologies, better storage and distribution systems can reduce seasonal price hikes, ensuring greater food affordability for consumers and market stability for farmers.
- **Improvement of farmers' livelihoods:** Farmers often struggle to sell their produce due to fragmented supply chains and lack of access to profitable markets. Investments in better logistics and connected supply chains have the potential to increase farmers' incomes. Studies suggest that increased market access for farmers can boost rural incomes by 30-50%.[11]
- **Positive impacts on nature:** Investments in the 'critical middle' can reduce freshwater consumption, food losses, and ease pressure on land use by improving resource efficiency across food processing and distribution.
- **Job creation and economic growth:** The 'critical middle' of agri-food chains is mostly served by SMEs. Supporting SMEs in food processing, storage and distribution could lead to significant job creation and economic growth. Studies suggest that investments in food processing hubs often have multiplier effects, with every $1 invested generating $2 to $4 in economic activity.[12]
- **Mitigated climate impacts:** More efficient food systems, including greater use of advanced processing and packaging technologies, would contribute to lowering greenhouse gas emissions through reductions in food loss and waste. Studies suggest that recovering just half of the current food loss and waste would be enough to feed the world.[13]

The time is now

Time is not on our side to address the climate crisis and strengthen food security, but meaningful action is possible. Tetra Pak is calling on policymakers to act now by introducing targeted investment and smart policy interventions that can accelerate the transformation of food systems.

This action, particularly when directed towards the often overlooked 'critical middle', can raise the pace of change — delivering not only operational decarbonisation, but also building food systems that are economically, environmentally, and socially resilient.

We take our own responsibility for action seriously and remain committed to enabling the transition to more secure, sustainable and future-ready food systems.

Learn more

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8. WWF, 2022, https://www.saveonethird.org/
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13. More information: https://www.tetrapak.com/sustainability/focus-areas/food-loss-and-waste#:~:text=Food%20loss%20and%20waste%20are,enough%20to%20feed%20the%20world.

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