

DRIVING INCLUSIVE AGRICULTURAL TRANSFORMATION

THE CASE OF THE KENYAN TOMATO VALUE CHAIN¹

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EXECUTIVE SUMMARY

The Kenyan tomato value chain represents a hallmark of agricultural transformation, characterized by a massive twelve-fold expansion in production volume between 1980 and 2022 to meet a five-fold increase in domestic consumption. This growth is not merely an increase in volume but a fundamental shift in structure, now organized into mature geographic clusters and sustained by a resilient network of 234 wholesale markets and a rapidly densifying "hidden middle" of micro, small, and medium enterprises (MSMEs). Current findings indicate that the sector has transitioned into a highly commercialized, technology-led ecosystem where digital connectivity is universal and immediate financial liquidity is the transactional norm. While the value chain serves as a massive engine for employment—particularly for women who dominate the trading nodes and youth who comprise the bulk of the casual labor force—significant infrastructure gaps, particularly in sanitation and water access within wholesale markets, remain. Future policy must prioritize the formalization of trader-led governance models and targeted infrastructure investments to ensure the long-term competitiveness of this symbiotic relationship between small-scale producers and MSMEs. Further, through public-private partnerships, the government can incentivize these established MSME ecosystems that represent a significant, untapped source of private sector capacity that could be mobilized to address the critical infrastructure deficits identified in the sector.

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INTRODUCTION

The horticulture sector is key for Kenya's economy, contributing approximately 36% of the agricultural GDP. Within the exotic vegetable category, tomatoes are the dominant crop, representing 29% of the total production value. Unlike many export-oriented crops, 95% of horticultural production in Kenya is sold domestically, making the tomato value chain a critical component of national food security and rural livelihoods. The INCATA project (Linked Farms and Enterprises for Inclusive Agricultural Transformation in Africa and Asia) was established to investigate the dynamics of this transformation, specifically focusing on the relationship between commercially oriented small-scale producers (cSSPs) and the MSMEs that comprise the "hidden middle".

The project seeks to answer critical questions regarding what kickstarts commercialization, why certain actors move along the transformation process while others do not, and to what degree this development translates into poverty reduction and women's economic empowerment. By assessing the structure, conduct, and meta-conditioners of the value chain, this study identifies the drivers of change and the policies necessary to accelerate symbiotic co-development.

METHODS

The study utilized a comprehensive, multistage sampling approach involving surveys at the micro, meso, and market levels. A meso-level inventory initially identified 236 tomato wholesale markets across 36 counties. Detailed market surveys followed in 234 of these sites, utilizing structured focus group discussions with market committees, wholesalers, brokers, and transporters to capture longitudinal data over a ten-year period.

At the micro-level, face-to-face individual interviews were conducted with a sample of 903 traders (wholesalers and brokers), 906 producers, and 414 input suppliers. These actors were selected from three primary geographic clusters—the North, East, and South—identified through rapid reconnaissance as the primary zones for tomato production and consumption. These clusters represent a range of maturity, from "cradle" areas where production began to "emerging" areas in the southeast of Nairobi that have seen recent expansion due to improved road infrastructure and land availability.



KEY FINDINGS

Structural change and the development of production clusters



The spatial organization of tomato production is defined by a tiered progression from historical cradles into "second-wave" and "emerging" regions. This expansion has been remarkably dynamic; for example, the Production South cluster (Kajiado and Taita Taveta) has recently seen a surge in migration, with 16% of farmers moving specifically to start tomato farming, often originating from counties like Makueni and Kirinyaga. This development is anchored by wholesale markets with an average longevity of 43.5 years. These markets have shown increasing resilience, with nearly 90% now operating year-round compared to 81% a decade ago. While the government was instrumental in establishing 46% of these market sites, the current drivers of volume growth are increasingly internal to the markets themselves.

Wholesale markets as the centerpiece of transformation



Wholesale markets function as the structural backbone of the chain, handling an average of 39.1 tons of tomatoes daily during the high season. The sector has experienced a "vertical deepening," where growth is characterized by a richer ecosystem of services around existing markets rather than just the addition of new ones. Participation has surged, with the number of wholesalers growing by 211% and retailers by 389% over the last ten years.

However, this growth has outpaced infrastructure development. While 79.5% of markets are connected to the grid, a critical deficit exists in basic sanitation, with only 0.6% of markets possessing improved flush toilets. The current trader-to-toilet ratio stands at 143:1, signaling a severe inadequacy that threatens the health and efficiency of these hubs. Furthermore, water access is highly unequal; over half of the markets in the Production South cluster (57.9%) report having no water access at all.

Commercialization of the input and output nodes



Transformation at the farm level is driven by high-intensity, technology-led systems. Commercialization of the input side is nearly universal, with 96% of farmers utilizing improved varieties—such as Ansal F1 and Big Rock F1—and 97% applying both fertilizers and pesticides. Producers are deeply integrated into professional input markets; 76% now source seedlings from specialized propagators rather than establishing their own nurseries. Land access has also shifted toward a market-driven model, where 65% of tomato plots are acquired through active informal rental markets rather than traditional inheritance.

On the output side, the value chain is characterized by rapid disintermediation. Between 77 and 81% of traders now bypass multiple middle layers to source directly from farmers. Transactions are highly liquid; 100% of producers report being paid on the same day as the sale, and 87% of traders pay fully upon receipt of the produce. This spot-oriented market operates without the burden of "tied" contracts, as historical practices like providing cash advances to secure supply are now extremely rare, occurring in less than 1% of cases.

Symbiosis and the hidden middle



The transformation is sustained by a symbiotic relationship between producers and a densifying "hidden middle" of MSMEs. This segment has seen a 284% increase in agricultural input shops and a 290% increase in transport logistics firms over the last decade. Input suppliers act as critical financial intermediaries, with 67% offering credit to farmers to facilitate intensification. Furthermore, the logistics segment has transitioned to a reliance on third-party logistics (3PLs), which allow traders to move bulk volumes flexibly without the high overhead of vehicle ownership.

Digital connectivity is the primary coordinator of this symbiosis. Smartphone ownership is nearly universal, standing at 85% among producers and between 73% and 79% among traders. Mobile phones are used by 92% of traders to negotiate prices and coordinate logistics, while mobile money has become a foundational financial technology, used by 62% of traders overall and up to 75% in urban consumption hubs.

Inclusion of women and youth



The sector is a vital engine for inclusion, though roles are clearly differentiated. Women are the dominant actors in the trade segment, constituting 65% of all wholesale traders and 81% of retailers. Youth participation is concentrated in labor rather than ownership; while they own only 1% of tomato trading enterprises and 8% of input shops, they comprise approximately 50% of casual labor and 60% of salaried staff within these firms. On-farm, women provide the bulk of hired labor during the intensive harvesting phase, representing the largest segment of the workforce across all clusters. These actors are largely experienced and educated, with 99% of input suppliers having finished primary school and traders averaging 12 years in the business.

CONCLUSION

The Kenyan tomato value chain has matured into a sophisticated, market-linked ecosystem defined by technological intensification and a highly resilient hidden middle of service providers. The co-development of commercially oriented small-scale producers and MSMEs has created a value chain that is largely self-governing and highly responsive to domestic demand. However, the speed of this commercialization has outpaced the provision of public goods, particularly in sanitation and water infrastructure in wholesale markets.

To sustain the subsector's dynamic growth, policy interventions should focus on several key areas. First, targeted investments in improved sanitation and water systems are required to address the severe deficits that threaten market efficiency. Second, to manage the tension between market fees and service delivery in Kenya's tomato subsector, it is recommended that the government formalizes and empowers trader-led governance committees to take a more central role in fee reinvestment and infrastructure management, particularly water and sanitation. Third, the government can strategically leverage the rapid growth of allied businesses to support public-private partnerships (PPPs) for the building and maintenance of market infrastructure. Furthermore, the government can use the growth of the hidden middle to encourage private investment in specialized infrastructure that the public sector has struggled to provide. For example, private cold storage is currently the rarest form of infrastructure, and the likelihood of a market developing such specialized facilities is positively correlated with the existence of structured, trader-led management. By creating policy frameworks that support PPPs, the state can incentivize these rapidly growing logistics and input firms to co-invest in high-value assets—such as cold chains, paved loading zones, and solar-powered water systems—thereby ensuring the long-term competitiveness and resilience of Kenya's tomato production clusters.

