June 2025 Technical Policy Brief/ KIEP/13

Unlocking Inclusive Agro-processing in Machakos County for Sustainable Development

Key messages

- Machakos County faces major socio-economic hurdles including poor infrastructure, limited access to clean water, healthcare, and education, particularly in low-income rural areas.
- High levels of unemployment among youth pose a threat to the county's long-term stability and economic growth.
- Agriculture, a key sector, is affected by effects of climate change including increased risks from erratic weather and land degradation
- This technical policy brief recommends for multi-sectoral interventions, including investment in infrastructure and services, climate-smart agriculture, support for SMEs, and youth empowerment programs.

Introduction

Machakos County's economy is largely anchored in agriculture and livestock farming, with mango, dairy, maize, pigeon peas, and indigenous poultry forming the backbone of rural livelihoods. As of 2016, mango farming occupied over 49,000 hectares, generating KES 11.9 billion, making the county Kenya's second-largest mango producer by 2018. The establishment of a mango processing plant in Masii is a strategic step to enhance value addition and expand market opportunities. Maize and pigeon peas are also vital crops, contributing significantly to household food security and income. The livestock sector remains robust, with approximately 211,404 dairy cattle producing over 850,000 liters of milk daily. Indigenous chicken farming, practiced by 62% of households, plays a key role in food security and household income. Dairy cooperatives and extension services, such as those in Mwala Sub-county, support farmer capacity and market access. Despite this strong agricultural base, Machakos faces multiple development barriers, particularly in rural areas. These include poor road infrastructure, limited access to clean water, underfunded healthcare and education systems, and high youth unemployment. Additionally, climate change has led to increased weather variability and land degradation, posing risks to the agricultural sector. To unlock sustainable growth, this brief recommends targeted investments in infrastructure, education, and healthcare; promotion of climate-smart agriculture; and expanded support for SMEs. Prioritizing youth skills development and innovation, alongside improved governance and stakeholder collaboration, is essential. With coordinated action, Machakos can achieve inclusive, resilient socio-economic development.

Methodology

The data used to generate this brief was compiled from the survey of the value chains which involved desk reviews, structured interviews, focus group discussions, site visits, observational techniques, data analysis and consultations with key stakeholders such as County government officials.

Challenges in the Value Chains

The following challenges were identified in three value chains:

1. **Mango value chain**

- Post-harvest losses
- Limited access to quality inputs and planting materials
- Inadequate infrastructure
- Market access and price fluctuations
- Limited processing and value addition
- Pest and disease management
- Climate change and environmental factors
- Skills and capacity constraints

2. **Dairy Value Chain**

- Low milk production and productivity
- Feed and water shortages
- Animal health issues
- Lack of cold chain and storage infrastructure
- Market access and pricing constraints
- Weak cooperatives and producer organizations
- Limited value addition and processing
- Gender and youth inclusion barriers

3. **Indigenous Chicken Value Chain**

- Low productivity
- Inadequate feed and nutrition
- Disease and high mortality rates
- Poor housing and biosecurity practices

Vegetable Value Chain

- Water scarcity and climate variability
- Pest and disease infestations
- Limited access to quality inputs
- Post-harvest losses
- Market access and price fluctuations
- Knowledge and skills gaps
- Weak infrastructure and logistics
- Gender inequality and youth exclusion

5. **Cereals and pulses value chain**

- Low and unstable yields
- Soil degradation and water stress
- Pests and diseases
- Inadequate storage and post-harvest handling
- Limited access to inputs and finance
- Market access and price volatility
- Weak farmer organization and coordination
- Limited value addition and processing capacity

Policy Brief Recommendations

1. **Mango Value Chain Recommendations**

- Promote investment in modern post-harvest technologies like solar dryers, pack houses, and cold storage to reduce spoilage.
- Promote pest and disease control programs, especially for fruit flies and anthracnose.
- Support mango processing (e.g., juice, puree, dried mango) to extend shelf life and increase value.
- Strengthen producer groups for aggregation, collective marketing, and better input access.

2. Dairy Value Chain Recommendations

- Promote improved dairy breeds and support AI (artificial insemination) services for genetic improvement.
- Invest in fodder production, feed formulation, and silage-making training for dry season feeding.
- Establish or equip milk cooling centers to reduce post-harvest losses and improve milk quality.
- Support dairy cooperatives in improving governance, milk collection, and value addition (e.g., yogurt, cheese).

3. **Vegetable Value Chain Recommendations**

- Enhance irrigation infrastructure (e.g., drip kits, water pans) to enable year-round production.
- Support agroecological pest control training to reduce reliance on chemical pesticides.
- Promote contract farming and access to urban and export markets for high-value vegetables.
- Develop aggregation centers with basic storage and packaging facilities.

4. **Indigenous Chicken Value Chain Recommendations**

- Support vaccination and disease control campaigns for common poultry diseases (e.g., Newcastle disease).
- Encourage improved housing and feeding systems to reduce mortality and boost production.
- Promote poultry groups/cooperatives for input access, training, and marketing.
- Invest in small-scale poultry processing units and branded packaging for better market access.

5. **Cereal and Pulses Value Chain Recommendations**

- Promote drought-tolerant varieties (e.g., early-maturing green grams, pigeon peas, and drought-tolerant maize).
- Train farmers on post-harvest handling (e.g., use of hermetic bags, threshing, drying techniques).
- Support community storage and bulking centers to enable aggregation and reduce post-harvest losses.
- Link farmers to structured markets and warehouse receipt systems for better pricing and storage.

6. General Cross-Cutting Recommendations

- Capacity Building: Train farmers on value addition, processors, and cooperatives on good agricultural practices (GAP), post-harvest handling, business management, and climate-smart techniques. KIRDI
- Infrastructure Development: Invest in rural roads, storage facilities, market access points, and agro-processing centers.
- Access to Inputs and Finance: Facilitate access to quality seeds, breeding stock, feeds, and affordable credit through cooperatives and microfinance schemes.
- Market Linkages: Strengthen linkages between producers and formal markets through cooperatives, digital platforms, and contract farming.
- Research and Extension: Strengthen research-extension linkages for innovation uptake, and deploy more extension officers at ward levels.
- Climate Adaptation: Promote drought-resilient varieties, water harvesting technologies, and conservation agriculture across all value chains.

- Proper land management practices including afforestation, conservation, training and awareness creation and collaboration with relevant government agencies such as Ministry of agriculture, KEFRI, KALRO among others.
- To curb post-harvest losses and boost farmer incomes, investments in mango processing is essential

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Acknowledgments

Preparation of this Technical Policy Brief was facilitated by Kenya Industry and Entrepreneurship Project (KIEP), an initiative being implemented by Ministry of Investment, Trade and Industry with the financial support of the World Bank (Project ID P161317). Appreciation goes to the KIRDI management, project coordinator, Dr. Arthur Onyuka for facilitating the study and the County Government of Kirinyaga for support while in the field.

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