*Policy Brief No. 4*

July 2025

KENYA FORESTRY RESEARCH INSTITUTE

# Enhancing and Expanding Market Connections for Prosopis - Based Energy Products

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## EXECUTIVE SUMMARY

*Neltuma juliflora* (formerly *Prosopis juliflora*) - (locally known as Mathenge) is an invasive species, but when managed appropriately, it offers significant economic and environmental benefits. One of the objectives for introduction of *Neltuma juliflora* was provision of wood fuel. This policy brief focuses on strategies to enhance market connections for Prosopis-based energy products like fuel-wood, charcoal, and briquettes, with a special emphasis on improving market linkages, addressing land ownership challenges, and fostering cooperative models for collective marketing and production. Key recommendations include; supporting producers through access to capital, establishing cooperatives to improve collective bargaining power, improving infrastructure, facilitating certification (Fair Trade, FSC), proper branding and packaging, and addressing logistical challenges. The aim is to foster sustainable economic development, improve local incomes, and meet energy demands, especially in arid and semi-arid regions and for refugee communities

## BACKGROUND INFORMATION

*Neltuma juliflora,* an invasive species brought to Kenya's Arid and Semi-Arid Lands (ASALs) in the 1970s for purposes of erosion control, desertification management, and fuel-wood provision, has resulted in ecological and socio-economic challenges. Due to its rapid growth and invasive nature, the species has outcompeted native vegetation. Widespread availability of *Neltuma juliflora* in arid and semi-arid regions presents an opportunity for economic empowerment. With proper management, Prosopis can serve as a renewable energy source providing charcoal and fuelwood, hence contributing to addressing energy deficits. However, market potential for the energy products is limited by challenges such as; weak value chains, lack of certification, and logistical problems. Strengthening infrastructure and encouraging the formation of cooperatives can help address these challenges while fostering a more sustainable use for the species

**Plate 1:** Charcoal produced from Mathenge

## PURPOSE OF THE POLICY BRIEF

This policy brief provides strategies for transforming *Neltuma juliflora* into a valuable energy resource for local economies and sustainable development. It advocates for: formation of cooperatives to improve market access; addressing land ownership in Prosopis infested area issues that affect producers; and recommends policy actions for creating a conducive environment for market expansion, quality control, and sustainable practices in Prosopis -based energy production. The brief calls for public-private partnerships (PPPs) to drive investments in biomass energy production, and build the necessary infrastructure for the Prosopis energy value chain.

## ANALYSIS, DISCUSSION AND CONSIDERATIONS

*Neltuma juliflora* is a readily available raw material for biomass energy production to provide for areas facing significant shortages, including refugee settlement camps in arid regions. Utilization of this species for energy production can mitigate deforestation of indigenous forests and reduce pressure on other natural woodlands. However, development of Prosopis-based energy products is hindered by several challenges:

- **Limited Access to Capital and Technology:** Smallholder charcoal producers have limited access to funds and technologies for efficient harvesting and processing of Prosopis.
- **Land Ownership:** Land tenure systems in Prosopis invaded regions are often unclear, leading to challenges in securing long-term investment for production and processing.
- **Fragmented Value Chains:** A lack of coordination and cooperation among producers results in inefficiencies in processing, storage, and distribution of Prosopis-based energy products.
- **Limited Market Access:** While demand for Prosopis-based biomass energy products exists, the high cost of certification, coupled with logistical barriers, limits access to higher-value markets.
- **Quality Control Challenges:** Inconsistent product quality due to poor processing and storage practices hampers marketability.
- **Support for Producers:** Enhancing support for producers is critical to expanding the market for Prosopis-based energy products. These producers often face significant barriers, including land tenure issues and limited access to capital. Key solutions include:
    - **Microfinance and Grants:** Provide financial assistance through microloans and grants to help smallholders purchase equipment, adopt sustainable technologies, and expand their operations.
    - **Training Programs and capacity building:** Offer training on sustainable harvesting, efficient processing methods, and quality control to improve product standards and profitability.
    - **Formation of Cooperatives:** Encourage formation of cooperatives to pool resources, reduce production costs, and strengthen bargaining power in the market. Cooperatives can help address issues of land ownership and access to markets by providing collective ownership of land or equipment, as well as facilitating group certifications.
    - **Land Ownership and Tenure Solutions:** Address land tenure issues through land reforms that provide clear titles or secure tenure for smallholder producers, enabling long-term investments in Prosopis cultivation and processing.
- **Value Chain Enhancement:** The Prosopis-based value chain for energy production faces inefficiencies that hinder its competitiveness. Inefficiencies arise from poor infrastructure, weak coordination among stakeholders, and limited processing facilities. Key recommendations for value chain enhancement include the following:

- **Briquette Manufacturing Plants:** Establish briquette manufacturing plants closer to Prosopis production areas to reduce transportation costs and increase product availability.

**Plate 2:** Product from *P.juliflora*

- **Branding and Packaging:** Branding and packaging for Prosopis-based energy products should highlight their eco-friendly and sustainable qualities, such as reducing deforestation and providing a renewable energy source. A strong narrative about the species' transformation from invasive plant to valuable resource, coupled with its positive impact on local communities, can appeal to ethically-minded consumers. Certifications like Fair Trade and Forest Stewardship Council (FSC) can position Prosopis-based energy products as premium in international markets. Packaging should use biodegradable or recyclable materials, and be designed to be visually attractive, informative, and durable ensuring product quality during transportation.

**Plate 3:** Mathenge pods ready to be processed

- **Decentralized Processing Facilities:** Build decentralized processing units and storage hubs to provide smallholder producers with access to affordable processing facilities and storage space, ensuring product quality and reducing spoilage.
- **Improved Logistics and Infrastructure:** Invest in road infrastructure, transportation networks, and digital tools to streamline supply chain management and reduce logistics costs.
- **Market Expansion:** Access to markets is crucial for increasing the profitability of Prosopis-based products. However, high certification costs, logistical challenges, and limited marketing networks restrict market access. Key strategies for market expansion include:
    - **Certification Assistance:** Help producers obtain Fair Trade and Forest Stewardship Council (FSC) certifications to open access to premium international markets and increase the market appeal of Prosopis products. Group certification for charcoal producer associations more preferred.
    - **Cooperative Marketing:** Leverage the power of cooperatives to collectively market Prosopis-based products, reducing marketing costs and improving visibility in retail and online markets.
    - **Retail and E-Commerce Expansion:** Increase the presence of Prosopis-based products in supermarkets and online platforms, thereby reaching a broader consumer base.
    - **Learning from Other Sectors:** Apply successful market expansion strategies from other sectors, such as the coffee and organic product industries, to expand Prosopis-based product markets.
    - **Public-Private Partnerships (PPPs)** can drive investment and develop critical infrastructure for the Prosopis value chain, addressing land ownership, certification, and market access issues.
    - **Land Reform and Policy Support:** Work with government bodies to create policies that address land tenure issues and promote long-term investment in Prosopis.

**Policy Implications (Policy Options)**

1. **Producer Support:**
   - Provide access to microloans and grants for purchase of sustainable harvesting and processing equipment.
   - Facilitate training on sustainable harvesting, efficient processing, and quality control.
   - Support formation of cooperatives to strengthen collective bargaining and improve access to markets and certifications.
   - Address land tenure issues through land reforms and provide clear titles/letter of allotment for producers.
   - Full implementation of the Forest (Charcoal) Rules
   - Value chain enhancement through investing in decentralized processing units, improving logistics, and promoting eco-friendly packaging for Prosopis-based biomass energy products.
2. **Market Expansion:**
   - Provide assistance for obtaining Fair Trade and FSC certifications to access premium markets.
   - Invest in retail distribution networks and expand online presence for Prosopis-based biomass energy products.
   - Encourage cooperative marketing to reduce costs and increase market access.
3. **Public-Private Partnerships (PPPs):**
   - Facilitate PPPs for infrastructure development and certification processes.
   - Promote policies that address land ownership issues and encourage investment in Prosopis-based production and processing.

**Conclusion**

*Neltuma juliflora* can offer sustainable energy and economic opportunities, particularly in underserved communities, by addressing challenges like; certification of products, infrastructure, and market access. Forming cooperatives and investing in infrastructure and certification will strengthen its value chain, control invasions, and improve community livelihoods.

**Recommendations**

- Introduce government-backed microloans and grants to support producers in adopting sustainable harvesting and processing technologies. This will promote more efficient and environmentally friendly production methods
- Encourage creation of cooperatives among producers and provide training on sustainable practices, efficient processing, and quality control to improve market access and reduce costs.
- Invest in decentralized processing units and storage hubs to improve product quality, reduce transportation costs, and boost local economies by processing products closer to their source
- Promote biodegradable packaging for Prosopis-based products and support obtaining Fair Trade and FSC certifications to help producers access premium international markets.
- Facilitate PPPs to develop infrastructure like storage facilities, processing units, and transportation networks, hence streamlining operations, reducing costs, and promoting sustainable practices in the Prosopis value chain.

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