

## From Burden to Opportunity: Women Harness Opuntia for Renewable Energy in Laikipia North through the Be Zero Gas Project



### *Opuntia invasion: A growing threat to pastoral lands and livelihoods*

In the arid and semi-arid lands of Mukogodo East Ward in Laikipia North, climate change has reshaped everyday life. Droughts last longer, grasslands have thinned out, and families who once relied on their herds for survival now struggle to cope. The spread of opuntia—a fast-growing invasive cactus has worsened the situation by degrading rangelands and displacing grazing grasses. Its sharp spines injure livestock, causing infections, blindness, weight loss and death. As grazing lands shrink, pastoral livelihoods weaken, and household survival becomes even harder—especially for women.

In order to meet the energy needs for their households, women and girls have shouldered the burden of walking long distances to collect firewood, risking their safety, inhaling toxic smoke from traditional cooking fires, and losing valuable time that could be used for family care, education, or income-generating work. But today, a new story is unfolding in Mukogodo East, a story of innovation, dignity, and hope for the pastoralist community.

### *Turning a problem into power*

What has been a symbol of environmental destruction has now become a resource for climate solutions. Thanks to the **Be Zero Gas Project**, Opuntia is being transformed into clean cooking energy through biogas. The initiative is funded by GIZ and implemented by the Institute for

Peace, Development and Innovation (IPSIA) in partnership with the County Government of Laikipia (Department of Water, Environment and Climate Change), Biogas International, and the Nanyuki Innovation Center (Davina Innovations & Engineering Works).



Launched in April 2024, the project supports 60 households across Lekiji, Twala, Rapunye, and Naatum women groups. Its goal is to deliver practical climate action through clean energy access, forest conservation, reduction of greenhouse gas emissions, restoration of degraded rangelands and women's economic empowerment.

To achieve this, biogas systems were installed by Biogas International, contracted by IPSIA. But the real breakthrough came from local innovation, which involved engineering a solution to process wild opuntia cactus into biogas feedstock. The Nanyuki Innovation Center invented a manual opuntia grinder that requires no electricity, runs like a bicycle, and is affordable for rural communities. After just five months of design and community testing, this groundbreaking tool became a symbol of locally made climate technology. To sustain the initiative, seven local technicians

were trained to install and maintain biogas systems, creating green jobs and ensuring local ownership.

*A community milestone*

The Be Zero Gas was officially commissioned on 9th October 2025 in Kiwanja Ndege, Mukogodo East Ward. The ceremony brought together government leaders, community members, and development partners in a powerful show of unity. Present were, County Department of Water, Environment, Natural Resources & Climate Change, GIZ & IPSIA, Hon. Shuel the MCA of Mukogodo East Ward, Deputy County Commissioner and staff, OI Jogi Conservancy, Community Land Committee members, Biogas International, Laikipia Permaculture Trust, Nanyuki Innovation Center and Women beneficiaries and residents.

The mood was one of pride and possibility as the project is transforming lives with clean energy. Biogas has made kitchens smoke-free, cooking faster, and pots clean. Families now grow nutritious vegetables using bio-slurry, boosting household food security. Women have more time for income generation, girls stay in school, and men report stronger family relationships. Firewood pressure on neighboring conservancies has dropped, easing community conflict and reducing the risk of wildlife attacks on women while fetching firewood.

### *Voices from the ground*

The impact of the project was reflected on among others these statements:

“For years we saw Opuntia as a curse but now it is cooking our food,” said Jackline Merinyi, chairperson Rapunye Women Group. “I used to walk four hours for firewood. Now I cook without smoke, my children are healthier, and I have more time for beadwork. This project has restored dignity to our homes.”

“This is proof that climate challenges can become climate solutions when communities lead,” said Mr. Florent, representing GIZ. “This initiative delivers clean energy, reduces emissions, and empowers women. We are proud to support the Be Zero Gas pilot.”

“This isn’t just biogas—it is resilience,” added Victor from the GIZ field team. “It restores degraded land, replaces firewood, and creates local jobs. This is climate justice in action.”

“The success here belongs to the people,” said Giulia Gianelli, Head of Mission at IPSIA. “Community ownership and local skills are the backbone of this initiative. We are ready to scale with more partners.”

“Opuntia is no longer an enemy—it’s an opportunity,” said Hon. Shuel, MCA Mukogodo East. “This model must spread to all ranches and group lands in Laikipia.”

As guest of honour, Hon. Leah Njeri, CECM for Environment and Climate Change, said that the Be Zero Gas project is a living proof that climate challenges, when met with innovation, become climate solutions. For upscaling this initiative and accelerating climate action, the CECM committed that:

- a) Creation of a Community Clean Energy Fund which shall be embedded in the Climate Change Policy and Climate Change Bill to support biogas, solar, and water access technologies.

- b) Integration of opuntia-to-biogas solutions into county climate programmes under FLLoCA and ecosystem restoration plans.

*Conclusion*

As women sang to celebrate the new technology, one thing became clear—the future of climate solutions is local. The Be Zero Gas project has transformed an invasive weed into renewable household energy. It saves time, restores rangelands, reduces carbon emissions, improves health, and empowers women.

This is more than a project: this is a climate transformation story.

This is partnership in action.

This is innovation.

This is women leading Africa’s clean energy future.

**This is Laikipia. This is resilience. This is Be Zero Gas.**



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