

# DUNG TO TABLE: BIODIGESTERS FOR SUSTAINABLE FARMING AND COOKING

Sistema.bio's biodigesters enable farmers to convert organic waste into energy and improve food security. Their small-scale units are highly durable, modular, easy-to-install and maintain, and can serve farmers with 2 to 200 cows.

The biodigesters produce biogas to power stoves and burners, as well as high-quality organic fertiliser to produce higher-yield crops. Other potential applications include water heaters, chaff cutters, and milk pasteurisers.

Women are the target beneficiaries as they represent more than 95% of the end users for household cooking. The systems reduce exposure to kitchen smoke and associated health consequences, as well as the time and burden of collecting fuel. By directly engaging women as customers, Sistema.bio empowers them to discuss the technology and process, and to organize and create new business opportunities in the long run.

Sistema.bio has 100% women leadership in Kenya. EEP Africa financing is enabling Sistema.bio to expand into new regions in Kenya and develop a gender-inclusive approach to the recruitment and training of sales agents and technicians. Women have already proven to be more effective sales agents than men, and they have continued selling throughout the pandemic as they see the substantial benefits the systems bring to their communities.

The unprecedented restrictions of the pandemic have demonstrated how biodigesters can dramatically increase self-reliance as farmers are able to sustainably grow and cook food without leaving their land for food, cooking fuel, or fertilizers.

The necessity to adapt during the pandemic has also led to lasting improvements in operations that will facilitate scale-up. Sistema.bio now uses digital technology to facilitate on-boarding and recruitment at all locations. Bringing a broader group of women together from several areas rather than relying on in-person training has created a stronger sense of belonging to something larger. They have also developed extensive training materials and were able to train a maintenance team entirely remotely.

## TARGETED OUTCOME AND IMPACT

Even though the project launched during the pandemic, they have already sold over 830 biodigesters, which translates into direct impacts to over 4,000 people. The project plans to create jobs for more than 80 women as sales agents and technicians.

Based on expected sales during the project, Sistema.bio estimates their systems will generate 17,700 MWh of clean energy per year, save EUR 2.7 million annually in energy-related household expenditure, and reduce 18,400 tCO<sub>2e</sub> emissions.

The biodigesters also reduce pressure on forests by replacing wood, charcoal and other non-renewable energy sources as biomass provides over 90% of Kenya's rural household energy needs.

Sistema.bio calculates that their biodigesters offer customers savings of about 30% of their household budget, as well as increased productivity and new income opportunities. With a 10-year warranty for each biodigester, the long-term impact is significant.

**Project developer:**  
Sistema.bio

**Technology:**  
Biogas



**Key synergies:**



**Key linkages:**

**Adaptation**

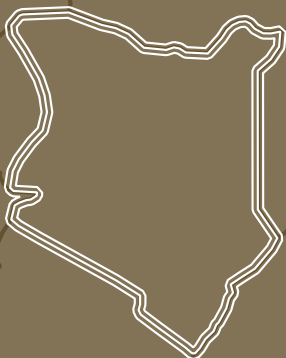
- Afforestation
- Business continuity planning
- Land use changes

**Resilience**

- Continuous access to essential services
- Increasing resources to poor/vulnerable
- Safety/emergency preparedness planning

**Location:**

Kenya



The smallest unit: **1 bucket of waste** per day (2 cows) produces 3 hours of **biogas cooking**, generates 2.1 kWh **electrical energy**, produces 80 litres of **organic biofertiliser** (enough for 40-80 m<sup>2</sup> of crops) and creates **cash savings** and **income opportunities**.