

SISTEMA.BIO: BIODIGESTERS IN INDIA AND KENYA



Project Partner: Sistema.bio, Inc.	Project Country: India and Kenya	Project Region: 22 states in India (including Maharashtra and Karnataka) and various regions in Kenya (Central, Eastern Nyanza, and Rift Valley Kenya)
Project Type: Superpollutant elimination (Biodigester)	Certification Standard: Gold Standard	CO₂ Impact in Tons per Year: 946,397 tCO ₂

Description of the project:

Sistema.bio addresses the interlinked challenges of energy poverty, waste management, and soil degradation by providing smallholder farmers with modular biodigesters. These systems convert animal manure into two vital resources: clean, renewable biogas for cooking and powering farm equipment, and high-quality organic biofertilizer. By capturing methane (CH₄), a superpollutant gas 28 times more potent than CO₂, the program eliminates significant greenhouse gas emissions at the source while replacing fossil fuels such as firewood, charcoal and liquefied petroleum gas (LPG).

Operating as one of the world's largest carbon farming networks, the initiative uses a digital monitoring, reporting and verification (dMRV) technology to ensure high data integrity. Each biodigester is tracked via GPS and assigned a unique serial number, with a sample of households equipped with smart biogas flow meters for real-time monitoring. This standardized model includes turnkey installation and a 10-year warranty, ensuring long-term performance and high adoption rates.

Beyond climate mitigation, Sistema.bio digesters allow women to average 285 hours of quality time, including time saved on firewood collection, preparing fuel for stoves, cooking, and cleaning utensils and the kitchen area. Such time savings allow women to invest more time in new income-generating activities and in leisure for themselves and their families. Furthermore, the nutrient-rich bioslurry empower soil structure restoration, boosting crop yields by up to 30%, increasing food security and farm income. Carbon finance subsidies cover up to 80% of system costs, making clean energy and climate-smart farming accessible to remote smallholder dairy farmers.

Key outcomes:

- Eliminates methane emissions from animal waste by capturing biogas at the source and replacing firewood and other fossil fuels for cooking.
- Improves soil health and agricultural productivity by supplying nutrient-rich bioslurry that can boost crop yields.
- Reduces time poverty and health risks for women by cutting annual fuel collection and lowering household air pollution.
- Drives financial inclusion by using carbon revenue to subsidize costs for smallholder farmers.



Dairy farmer in Kericho, Kenya User of Sistema.bio digester since 2019



Sistema.bio digester in Gujarat, India



A family of Sistema.bio users in Maharashtra, India

Supported SDGs



Increases food security by boosting crop yields and lowering chemical fertilizer costs.



Lowers household air pollution, increasing healthy living days by around 21.2 per year.



Frees time for children and young people to focus on schooling rather than fuel collection.



Empowers women by reducing their domestic labor burden and providing leadership roles within the local energy sector.



Provides decentralized renewable energy for cooking, heating, and potentially electricity generation.



Sustains hundreds of permanent green jobs and builds technical capacity in rural economies.



Directly mitigates millions of tonnes of CO₂e reducing methane and conserving forests.



Reduces deforestation by avoiding the use of tens of thousands of tonnes of firewood annually.