

## Clean energy in micro and small enterprises in Brazilian food chain



### Background

Brazil has the second largest global yield of cassava, at about 25 million tons per year, and an important dairy sector, with an annual production of 30 million tons.

Both of these food preparation industries have a large number of micro and small enterprises. Cassava flour facilities face concerns about the supply of wood for ovens and rising electricity costs. In the dairy sector, wastewater and manure often go untreated, and businesses face erratic energy supply from low-quality rural grids.

This project will harness the waste of both productive chains using bi-digesters and biogas generation sets and improve energy efficiency in the cassava flour ovens. It will initially focus on Alagoas and Pernambuco States in the northeast region, in partnership with governmental agencies and private partners.

### Project purpose

To stimulate the use of renewable energy (RE) and energy efficiency (EE) in the micro and small enterprises of the cassava and dairy food chains in northeast Brazil.



### Main activities and outputs

- Mobilise stakeholders via meetings and workshops that engage with key institutions
- Gather baseline data in cassava and dairy production clusters on current status of energy use, EE and RE potentials including residues
- Design possible RE solutions and EE measures for the studied settings
- Prepare feasibility study to estimate aggregate value of RE/ EE measures, and their environmental impact
- Implement at least two demo projects for each production chain for market testing purposes
- Provide technical assistance for similar projects to foster the market
- Develop proposed financial model, identify sources of funding
- Compile project learnings into a national publication
- Organize regional meetings to present results

### Expected impacts

- Energy consumption reduced by at least 20 % in dairy cluster
- Wood consumption in cassava flour ovens reduced by 50 % and electricity consumption by 30 %
- Elimination of dairy wastewater and manure contamination
- Reduced costs for enterprises, increasing profit and employment
- Increased awareness of technologies from the proposed publication
- Possibility of project replication in 400 cassava flour facilities and 300 dairy facilities in Alagoas and Pernambuco States
- Improved carbon footprint

#### Project Information

<b>Location:</b>	Brazil
<b>Duration:</b>	2013–2014
<b>Sector:</b>	Renewable energy & energy efficiency
<b>Thematic focus:</b>	Energy and food
<b>Total project budget:</b>	€ 181,551
<b>REEEP grant:</b>	€ 149,768
<b>REEEP donor:</b>	Norway
<b>Co-funding:</b>	€ 31,783 from EDS – Sustenergy
<b>Implementing partner:</b>	EDS – Sustenergy