

Electricity Generation for Isolated Communities in Amazon Region using National Technology for Biomass Gasification Systems - Gaseibras Project



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November, 18th 2006



GASEIFAMAZ Project

“Comparison Between Existing Technologies of Biomass Gasification in Brazil and Abroad and Formation of Human Resources at Amazon Region”

- ✓ Making the electric energy supply expansion possible in communities without energy access in the Amazon Region;
- ✓ Importation from the Indian Institute of Science - IISc of 2 gasification systems (5kW and 20kW);
- ✓ Tests at IPT (readiness, gases cleanness, electric energy generation);
- ✓ Transference to an isolated community at Amazon Region.

FINEP / BUN / CENBIO / IPT / UFAM / INCRA



The gasification system tested at IPT.

Source: CENBIO, 2004.



GASEIFAMAZ Project execution



The gasification system installed at Aquidabam Village, Manacapuru, Amazon State

Source: CENBIO, 2004.



Cupuaçu rinds available at the village.

Source: CENBIO, 2004.

The Indian and the Brazilian engine generator groups.

Source: CENBIO, 2004.





GASEIBRAS Project

“Nationalization of the Technology of Biomass Gasification and Formation of Human Resources at Amazon Region”

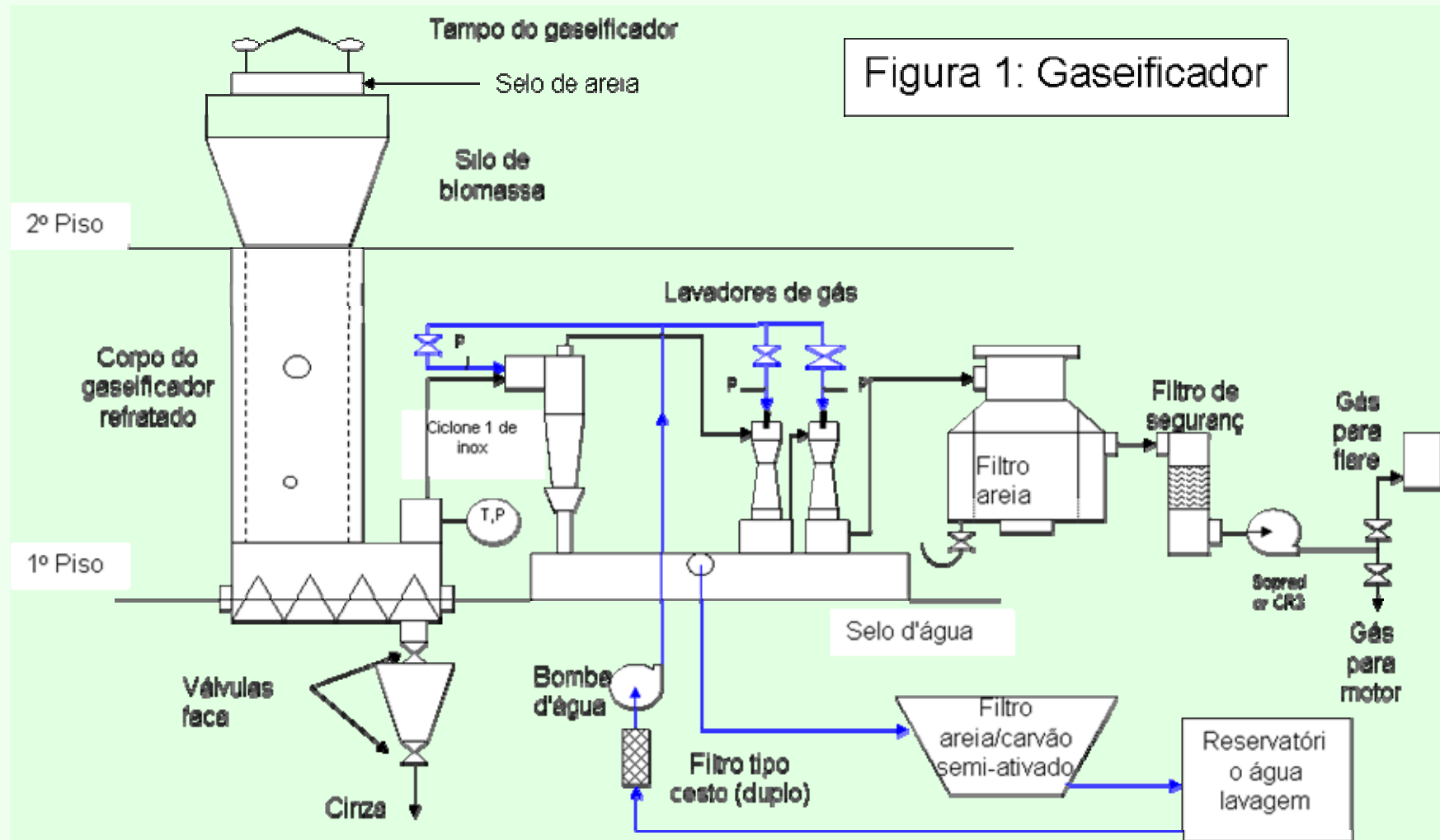
Use the experience previously acquired during the GASEIFAMAZ Project accomplishment to:

- ✓ To develop a small scale biomass gasification system (20 kW), downdraft type, for biomass *in natura*, with entire national technology;
- ✓ To verify the viability of these systems in the generation of electric energy at isolated communities;
- ✓ To characterize local man power in the operation and maintenance of these systems;
- ✓ To identify companies for these equipments manufacture in Brazil;
- ✓ To install the gasification system in an isolated community at Amazon region;
- ✓ To argue sustainable model to cover costs of O&M.

CNPq / MME

IEE / CENBIO / IPT / INCRA / CEAM / MWM / WEG Generators

Gasification System (Downdraft)





Developed goals - Gasification system

Improvements in the gasification project:

- ✓ Feeding system - silo (capacity of 4 hours of autonomy);
- ✓ Gas cleanness system - sand filter and washing peaks of bigger efficiency;
- ✓ Laundering water treatment system with half-activated coal;
- ✓ Ashes and coal discharge system.

Gasification system characteristics:

- ✓ Thermal power: 70 kWt;
- ✓ Electric power: 20 kWe;
- ✓ Diesel substitution of up to 80% for gas in an electric generator diesel;
- ✓ Biomass: rinds of cupuaçu, chestnut rinds, sustainable wooden residues, etc.



Gasification system constructed



Pictures of the gasification system constructed for GASEIBRAS Project - IPT

Source: CENBIO, November 2006.





Gasification system constructed



Pictures of the gasification system constructed for GASEIBRAS Project - IPT

Source: CENBIO, November 2006.





GASEIBRAS Project Isolated Amazon Village

Characteristics:

- ✓ Lack of access to the conventional electric network;
- ✓ High costs of energy supply;
- ✓ Population's low income;
- ✓ Environmental preservation necessities;
- ✓ Electricity supply extension to the Amazonian populations, in way to guarantee their permanence in the region.



Isolated Village at Amazon State.

Source: CENBIO, 2006.



GASEIBRAS Project - Next stages

- ✓ Tests in the gasification system at IPT;
- ✓ Choice of the community for system installation;
- ✓ Beginning of the qualification activities in the community for operation and maintenance of the gasification system.