

# Low-cost digesters in small-scale farms: an experience in the Colombian Andes

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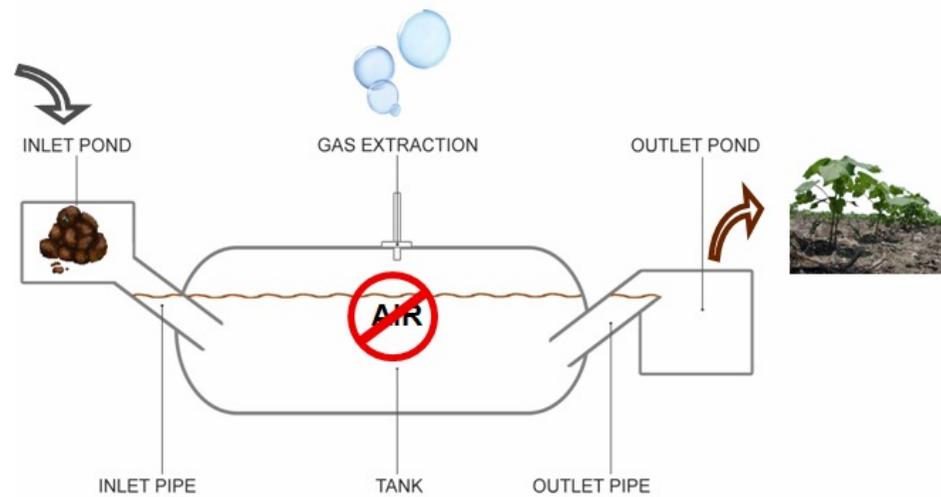
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## Low-cost digesters



Plastic tubular digester

# Context



Cajamarca, Peru



**Pilot project**

Rural households

**2600-3800 m.a.s.l.**

## Context

- Subsistence agriculture
- Self-sufficient farming (cow, guinea pig)



## Context

- Lack of water and electricity supply
- Lack of improved cookstoves (92% population)
- Traditional biomass: firewood and dried cattle dung



Goal



Crops, trees, shrubs



Livestock



Biodigester

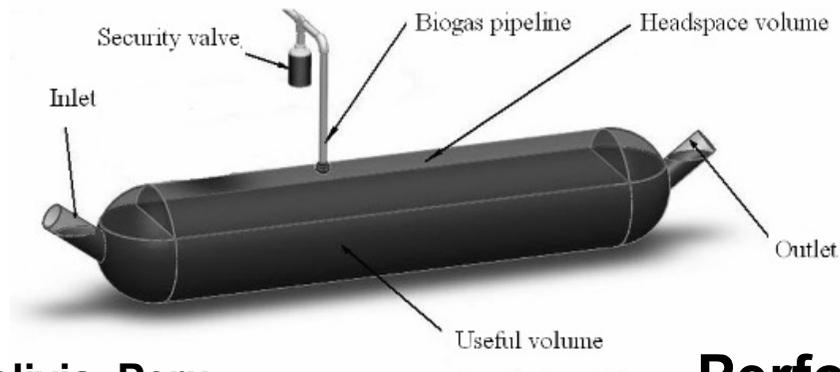
## Low-cost digester

Plastic tubular digester

Taiwan, Vietnam, Colombia, Costa Rica (Preston, 1990; Botero, 2008)



## Plastic tubular digesters



- ✓ No specialised manpower
- ✗ Prefabricated plastic bags require transport
- < Lifespan (5 years)

**Bolivia, Peru**

**Performance at high altitude?**

## Digestate reuse as biofertilizer

- Field trials



## Environmental and socio-economic benefits

- Life Cycle Assessment
- Environmental and socio-economic benefits (income, time, health)

**Digesters improve household standard of living!**



# Current project



**Bucaramanga, Colombia**



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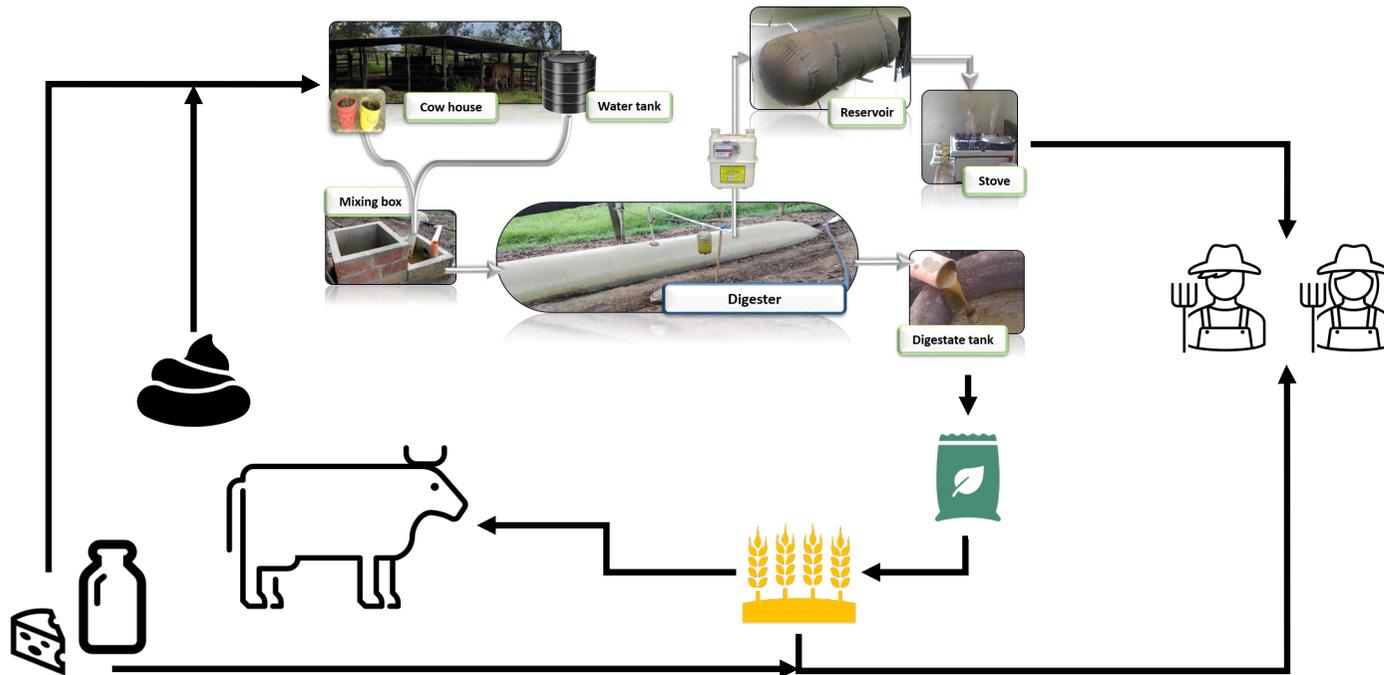


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## Current project

- Life Cycle Sustainability Assessment (environment, society, and economy)
- Digestate characteristics and post treatment



## Visit to Cachira



# Visit and talk at school in Cachira



## Visit to farm and interview with farmers to obtain social indicators





## Visit to pig farm



# Small instruction to pig farm workers



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Thank you for your attention!!

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