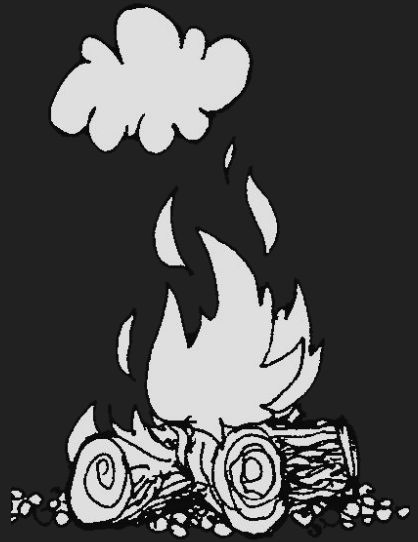
REVIVAL

250,00,00,000

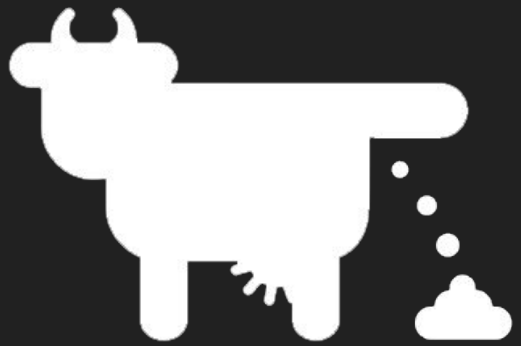
Savita Ben,
36 yrs
housewife

Shiva Ashram
શિવ આશ્રમ
Shantigram
શાંતિગ્રામ
Jaspur Gram
Panchayat Office
Jaspur Water
Treatment Plant
Jaspur
જસપુર
Mediclaim Hospital
in Ahmedabad
Krupa Farm
કૃપા ફાર્મ
Sidhanath
Mahadev Temple
Khoraj
ખોરજ
147
Lilapur
લીલાપુર
Khodiyar
ખોડિયાર
Vaishno Devi
Mandir, Ahmedabad
વૈષ્ણોદેવી
મંદિર, અમદાવાદ



Consequences

1.3 Million die/ Year



+

511041.39

Kilo Tons / Year


REVIVAL

 → 1 Village

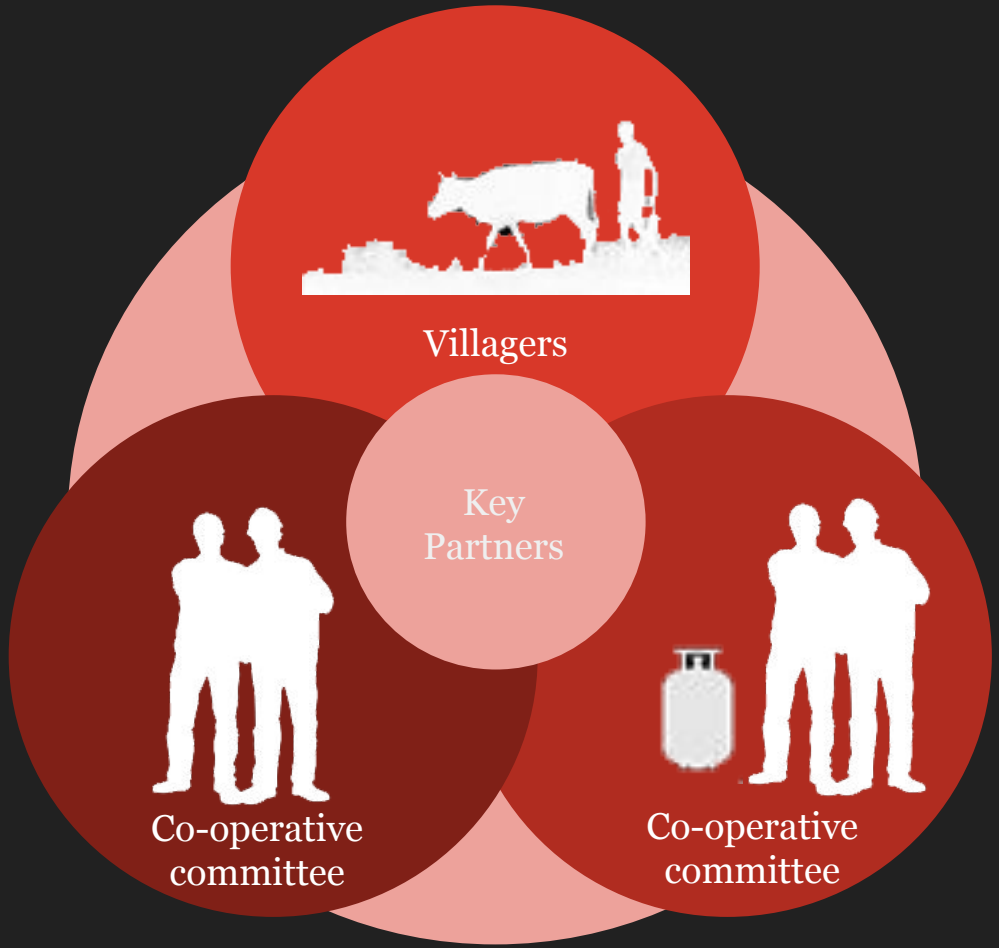
- 1 Village → 50 houses
- 500 Kg of waste / day / village

- Type of waste includes
  - Cow dung
  - Agro waste
  - Household waste
- Developing co-operative societies to collect waste from houses
- Waste brought from them at cost of 800 INR for 5000 kg of waste

- Privately owned trucks with biogas digester in cascaded form
- 3 trucks for 6 villages cycle
- Each Digester size → 10 m^3
- Gas produced in 1 month = gas used by 6 villages for 15 days + surplus
- Slurry residuals are a plus point

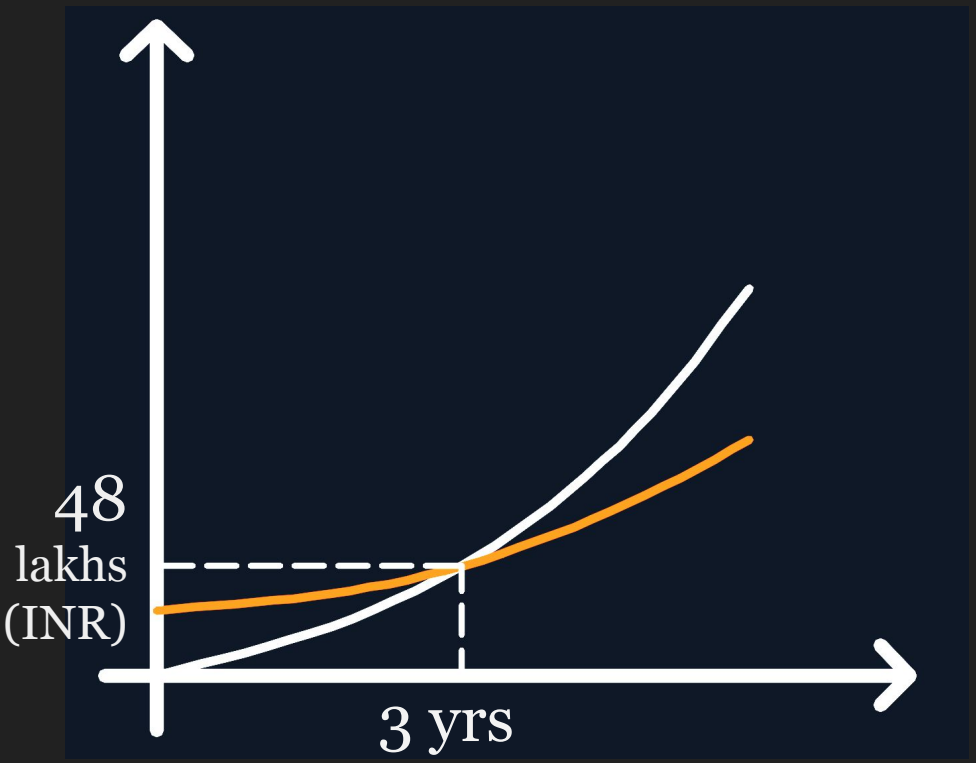
- 1 small co-operatively owned compressor plant with bottling between 6 villages
- Each cylinder lasts for 15 days
- Cost of 1 cylinder → 150 INR
- Slurry rate → 300 INR / Kg

REVIVAL


Villagers
Key
Partners
Co-operative
committee
Co-operative
committee

Finance

- Revenue :
- 1 Cylinder = 150 INR (7.5 kg)
- Slurry=300 INR per 5 kg
- Variable cost :
- Maintainance cost = 50000 INR / yr
- Total Salary provided = 438000 INR / yr
- Fuel cost = 60,000 INR / yr
- Waste cost = 800INR / 5000 Kg of waste
- Fixed cost :
- Cost of 1 biogas truck = 14 lakh INR including subsidy provided by government for installation
- 6 lakh INR for compressor plant with bottling (co-operative owner ship)



Total revenue

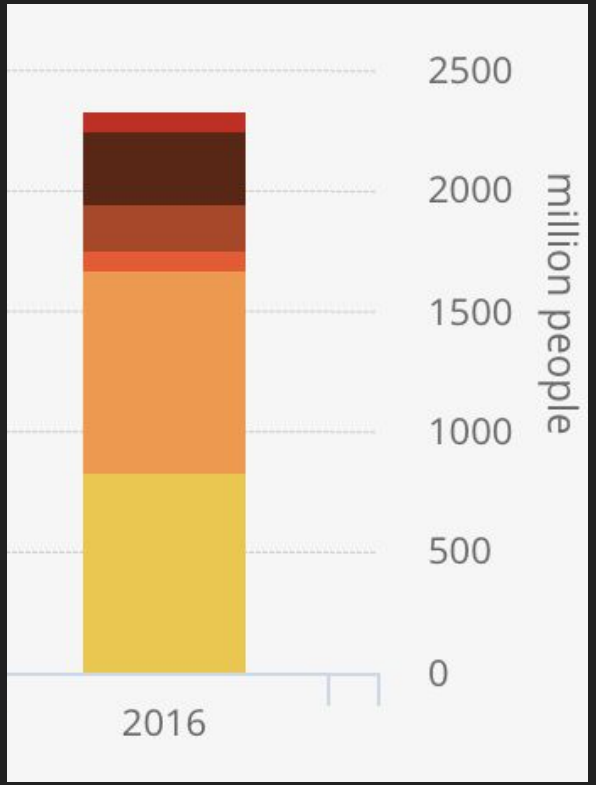
Total cost

Break even at 3 years when the initial investment is 48 lakhs

- The graph shows number of people without access to clean cooking
- So even if we target 1.1% of these rural houses in india, we can benefit 10 million people

Energy access outlook 2017

Population without access to clean cooking



Cleaner Fuel

Portable
+
Future scalable
in urban areas

Cost Cutting -
Half rates of
cylinder
+
Govt. subsidy

Disruptive
concept :
Works in place
of CNG

Slurry as
by-product.

Provides Employment

Brief idea:

Project revival is about portable biogas plant on wheels. It is derived from need to provide clean and green gas from biowaste to millions who still cook on wood fires, kerosene or coal. Thus eradicate air pollution and related health problems. The concept of portability is what differentiates this from other conventional methods. Hence reduces the cost of setting plants in each villages.

We, the change makers will be owning Biogas Trucks. Waste collection and cylinder and slurry distribution will be done as cooperative work. The gas cylinders cost ½ the present value thus reduces affordability issues. The CBG cylinders can be used in place of CNG and so it is a disruptive concept. This can be further scaled in other countries and also urban areas where space is a constraint for setting biogas plant.

Shikha Shah
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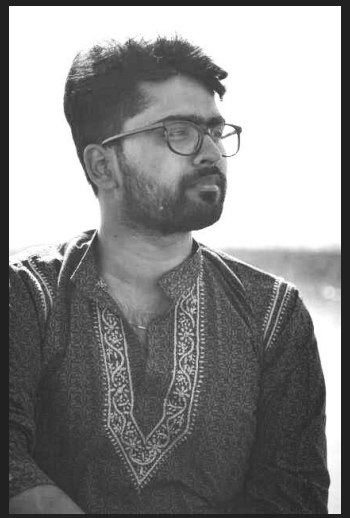
Aditya Dave
3rd yr, B.Tech



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THANK YOU

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A review on biomass energy resources, potential, conversion and policy in India

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ABSTRACT

In this communication biomass energy resource, potential, energy conversion and policy for promotion implemented by Government of India are discussed. The total installed capacity for electricity generation in India is 2666.64 GW as on 31st March 2013. Renewable energy is contributed 10.5% of total generation out of which 12.83% power is being generated using biomass. India has surplus agricultural and forest area which comprises about 500 million metric tons of biomass availability per year. In India total biomass power generation capacity is 17,500 MW. At present power being generated is 2665 MW which include 1666 MW by cogeneration. The various category of biomass in India is also discussed in this paper. And the research reveals that India has large potential for bio mass feed stock from different sources. Government of India deployed different policies and executed that the strategies for biomass power generation. Such approaches have included the whole biomass energy sector which incorporated the bio gas, bio diesel etc. in the policies. Government of India has focused on the deployment and development biomass energy sector with strategic policy and program which is notable portion of this review paper.

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Innovative Biogas Multi-Stage Biogas Plant and Novel Analytical System

First Project Experiences

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Abstract

The here presented applied research and development project is targeted to the development and application of new and improved techniques in plant design, performance analysis and process control. Hereto following the required steps are illustrated and the goals are outlined. The project covers the development of a previously patented anaerobic digestion process, adaption of flow cytometry as an analytical instrument and investigation of innovative ways of disposal of solid fermentation wastes. The preliminary experiences with a newly built research plant employing a novel anaerobic biogas digestion technique are discussed. In this paper the first outcomes concerning the construction and operation are discussed. A novel method of disposal of the fermentation wastes is also discussed and first results are shown.

Biogas, multi-stage, flow cytometry, respirometry, disposal of fermentation wastes

1. Introduction

A research network formed by Renergia, Metalinox (project leader), University of Trento and University of Trier has been established in order to build and operate a multi-stage type research fermenter system to explore the potential of a multi-stage fermentation system in which the single phases of the biological process are broken down into well separated steps allowing for higher specific gas yields and faster digestion. The findings will be applied to full size plants. The overall project is financed by the Autonomous Province of Trento.

To further improve the digestion efficiency and obtainable gas yields a novel process efficiency and control analytical system based on flow cytometry (FCM) will be developed (Foladori, Bruni and Tamburini, 2010 [1]). The lack of rapid and continuous quantitative and qualitative analytical methods for the determination of the efficiency of the digestion process is a major drawback in the operation of a