Presentation Pitch

Team Bad Pigs

Urania
Larissa
Fernando

Cilas
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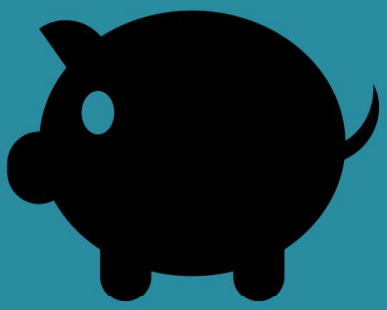
Just one farm with 600 swine can produce about 3.000 to 3.500 kilograms of waste PER DAY



20.000 poultry can produce 3.400 kilograms of waste PER DAY

Environmental Comfort

Metabolic stress

Drop in productivity

Susceptibility to diseases

Miscarriage

Reduce their immunity

Decreased male fertility

Ideal temperature

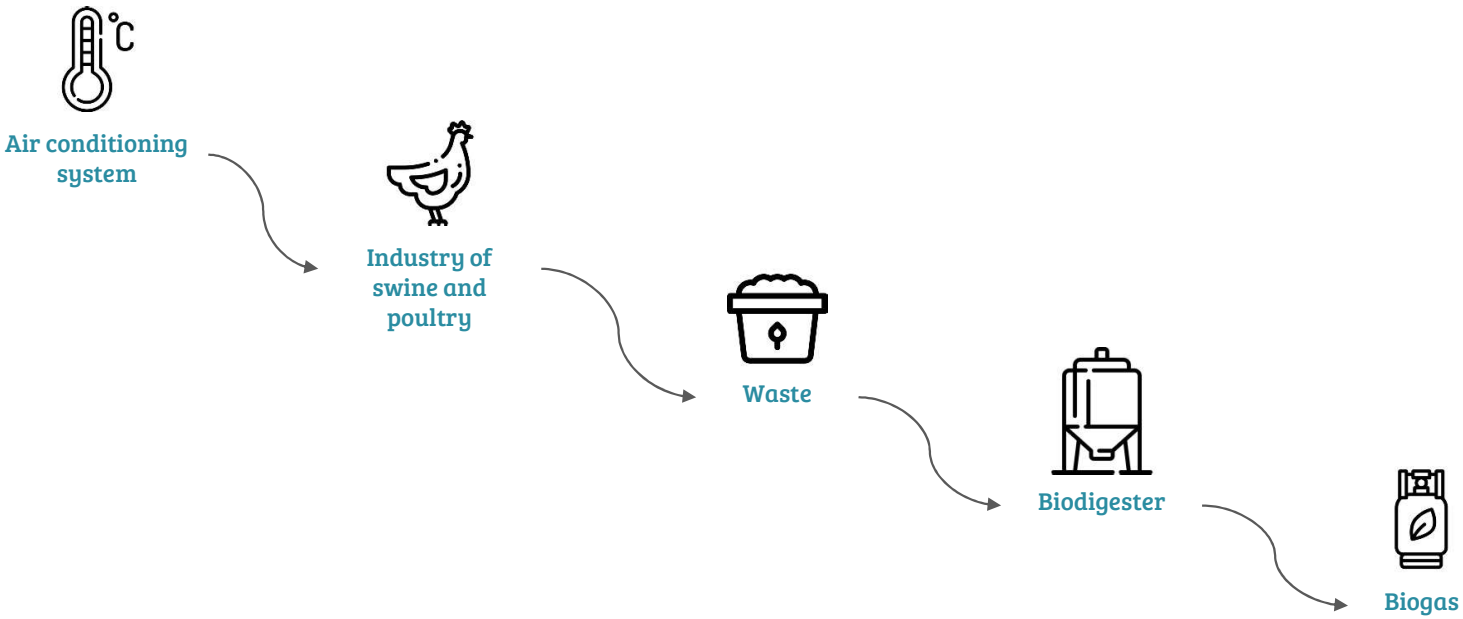
21°C +- 0.5°C

15 to 28 °C

Our challenge....

How to achieve a sustainable culture of swine and poultry with a focus on sustainable production of electricity and environmental sustainability?

Research about the culture of swine and poultry



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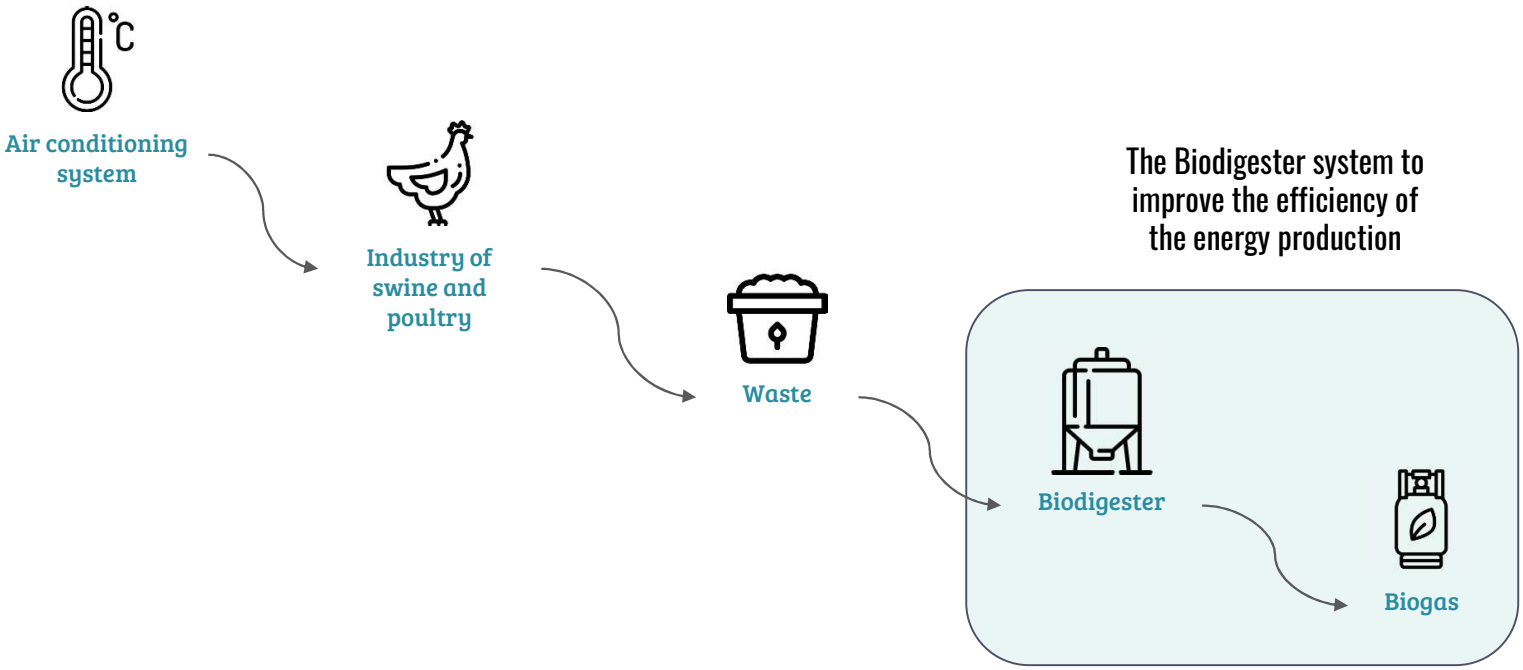

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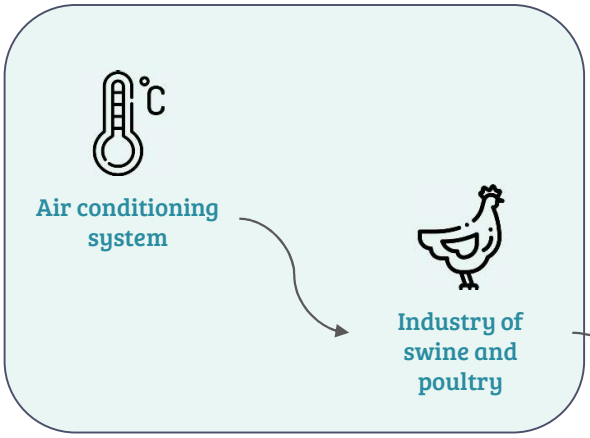
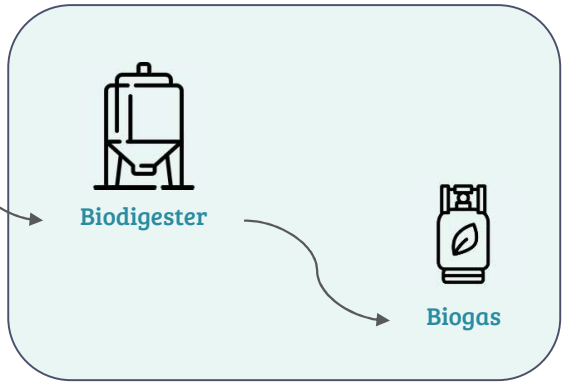


The environmental control system to improve energy efficiency use

The Biodigester system to improve the efficiency of the energy production



Research about the culture of swine and poultry

Linear Process

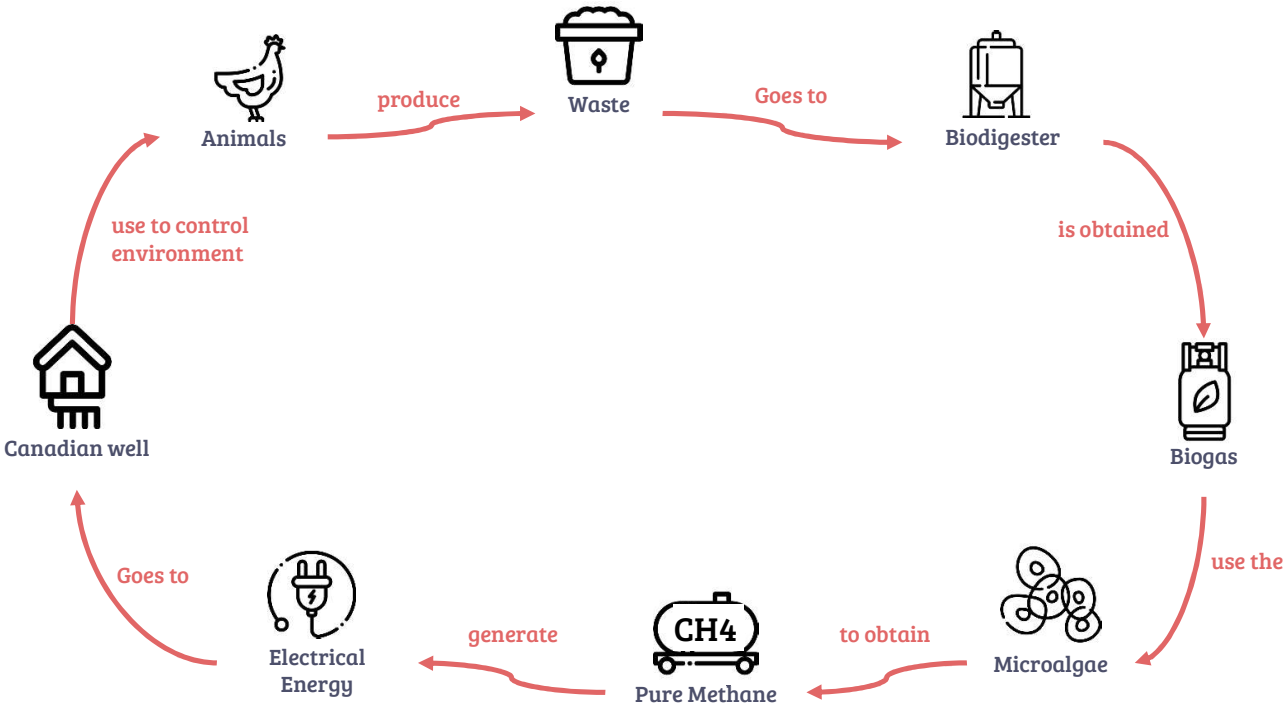
Air conditioning system

Industry of swine and poultry

Waste

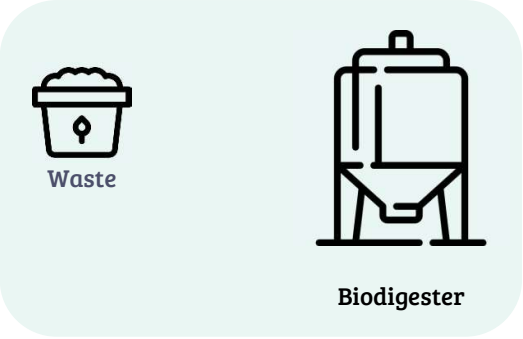
Biodigester

Biogas


Animals
produce
Waste
Goes to
Biodigester
is obtained
Biogas
use the
Microalgae
to obtain
CH4
Pure Methane
generate
Electrical Energy
Goes to
Canadian well
use to control environment

Biodigester

Tank which digests organic matter



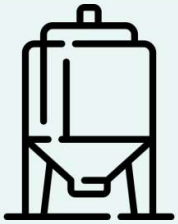
Biodigester

Tank which digests organic matter

Biogas is composed by:

CH_4: Methane (50-70% of the total)
CO_2: Carbon Dioxide
N_2: Nitrogen
NH_3: Ammonia
H_2S: Hydrogen Sulfide
H_2O; Water vapor

Waste



Biodigester

Biogas

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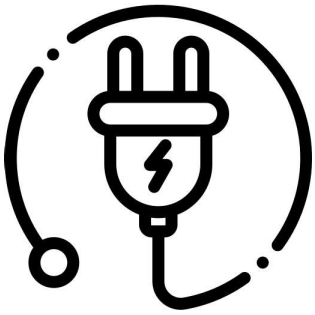

Biodigester to produce electrical energy

Methane gas can be burned to generate electrical power.

CH_4: Methane (50-70% of the total)
CO_2: Carbon Dioxide
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H_2O: Water vapour

Energetic value/
Calorific Power

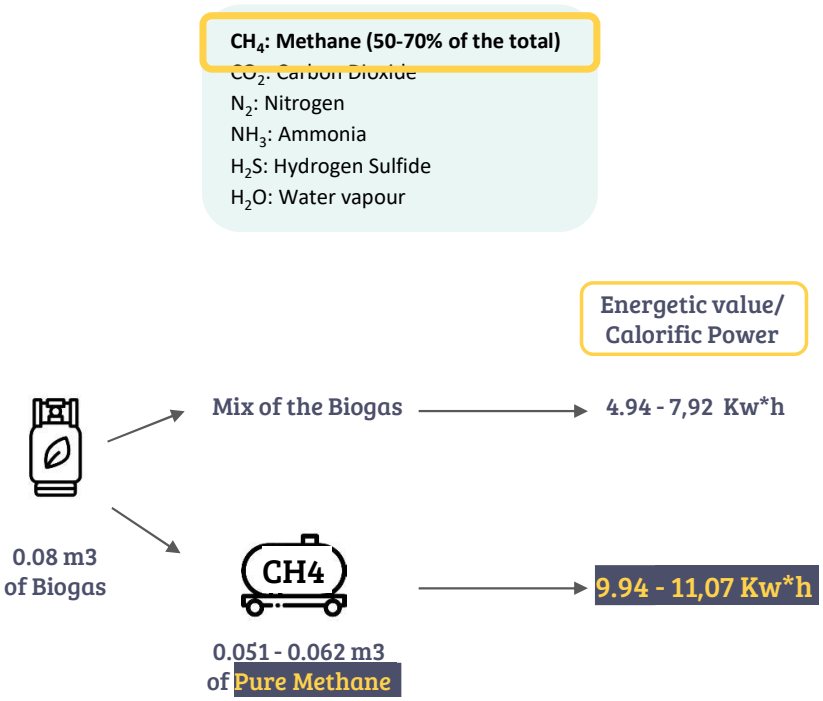
0,08 m3
of Biogas

Mix of the Biogas → 4.94 - 7,92 Kw*h

Biodigester to produce electrical energy

Methane gas can be burned to generate electrical power.

The carbon dioxide present in the biogas is considered an impurity.



Biodigester to produce electrical energy

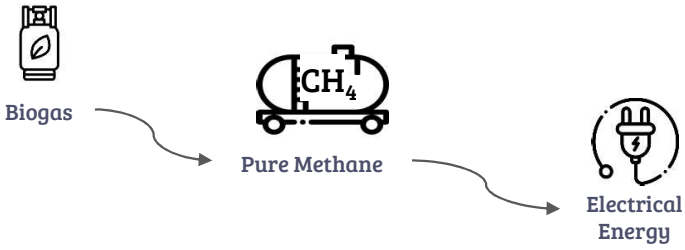
Methane gas can be burned to generate electrical power.

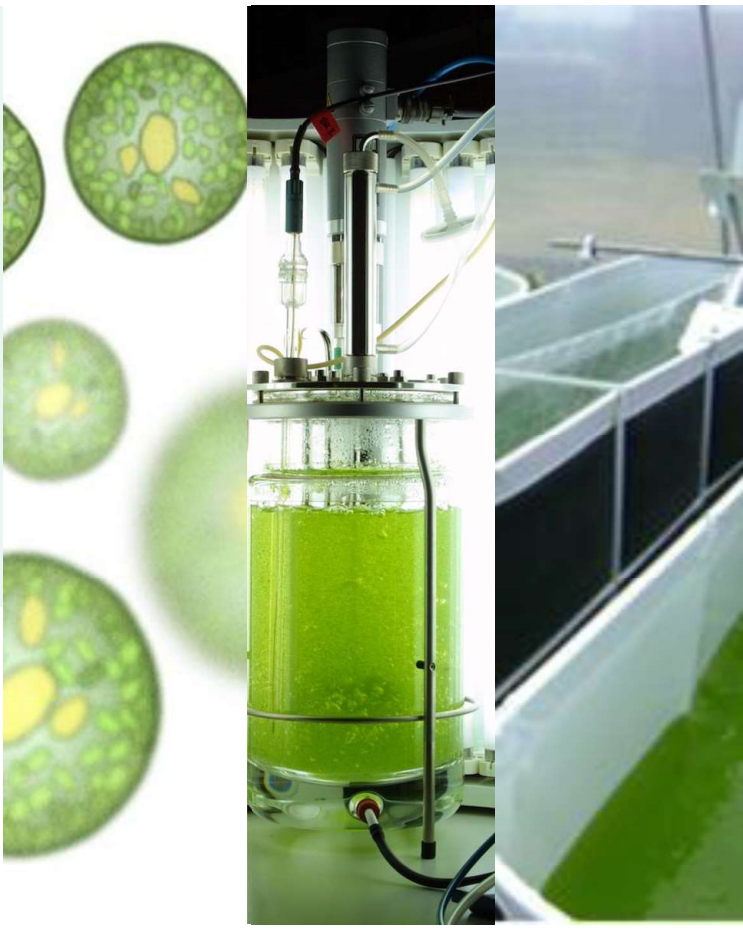
The carbon dioxide present in the biogas is considered an impurity.

Pure methane has more calorific power.

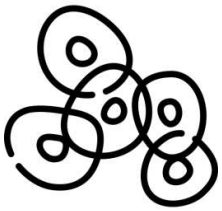
What if there is a way to improve the calorific value usage?

Improve the electrical energy production by using the purification of the biogas to get pure methane gas





Purification of the biogas



Microalgae

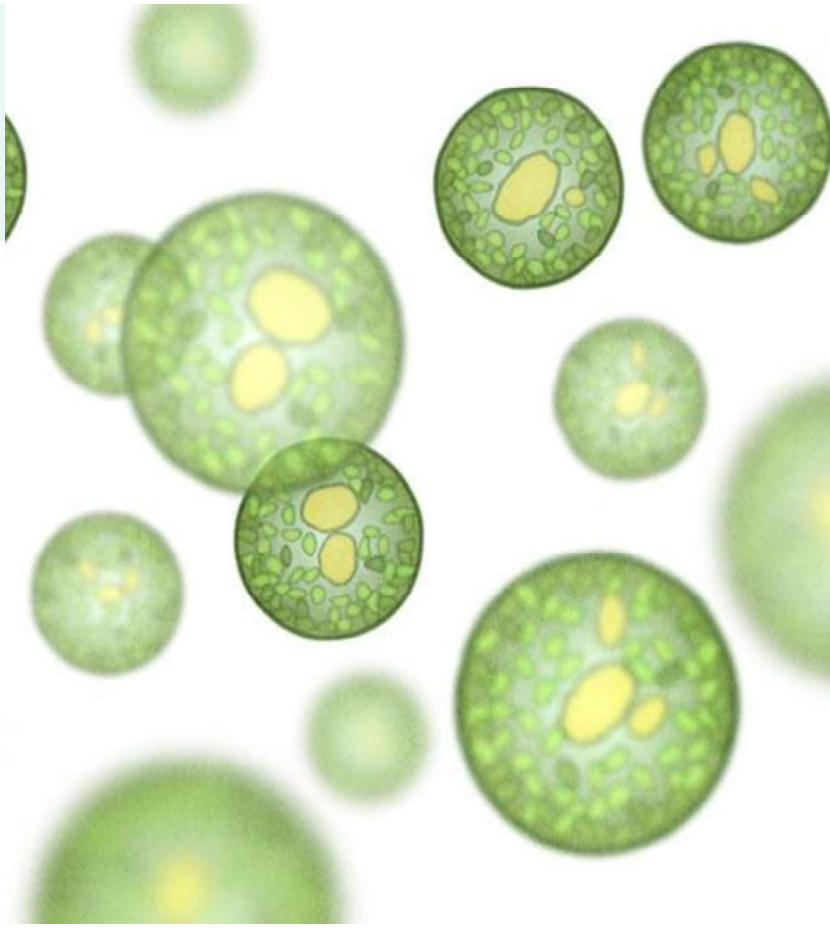
The Microalgae

Phototrofic microorganisms;

Capable of capturing carbon dioxide to make photosynthesis

More efficient than common plants on CO_2 fixation;

Can be cultivated in a simple saline environment;



Tanks for microalgae cultivation

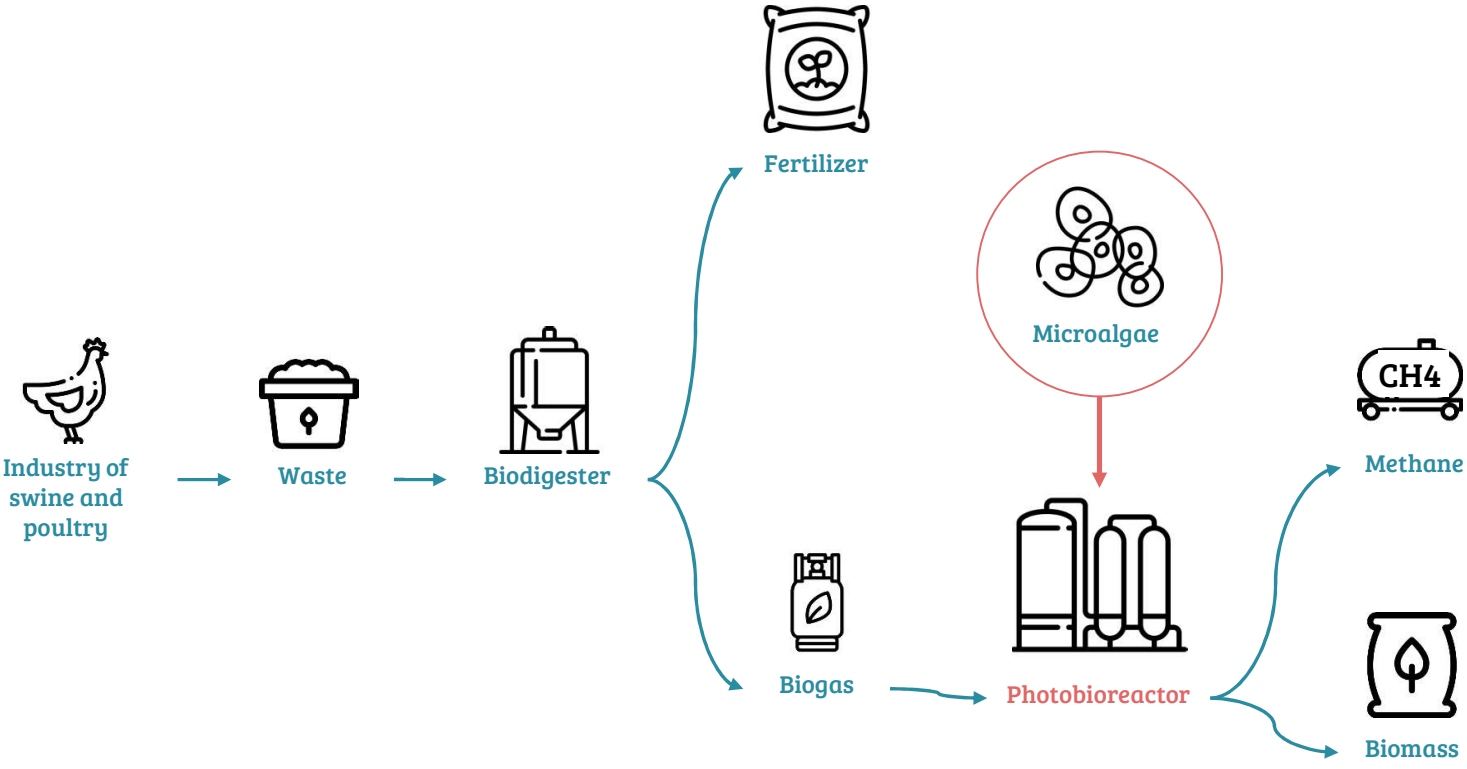
Tubular photobioreactor

Photobioreactor

Enclosed system

Simple tubular structure

Requires solar light


Industry of swine and poultry
Waste
Biodigester
Fertilizer
Microalgae
Biogas
Photobioreactor
CH4
Methane
Biomass

Revenue from Electricity and Carbon Credit generalization

Animals	Biogas (m^3)/Kwh	Kwh Price (R$)	Total Energy/Month (Kwh)	Energy Revenue (R$)	Carbon Credit (ton/month)	Revenue from Carbon Credit (R$)
Farm with 20.000 birds	5.5	0.4056	24804.97	10.060.89	833897.29	10.823.986.80
Farm with 600 swine (termination)			30690.00	12.447.86	34047.46	441.936.00

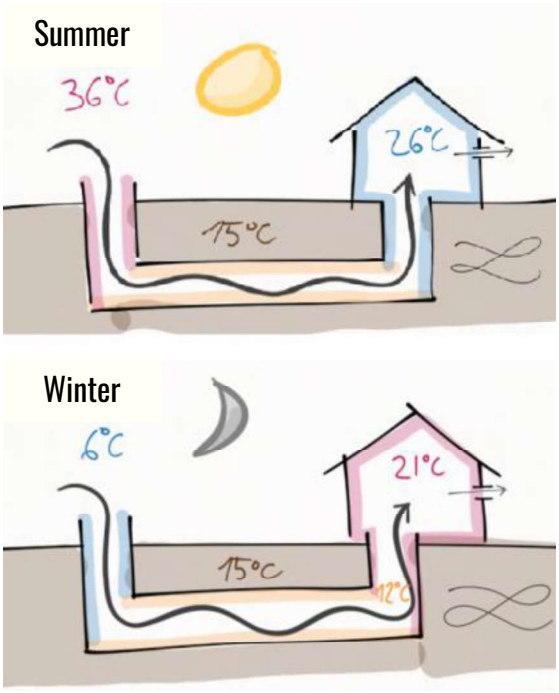
Fonte: Adaptado PRATI (2010); CATAPAN et al (2012).

What if there is a way to improve the energy efficiency of the energy generated by this purification system?

Reduce the energy used on the environmental comfort of animals by implementing a canadian well

Climatization system

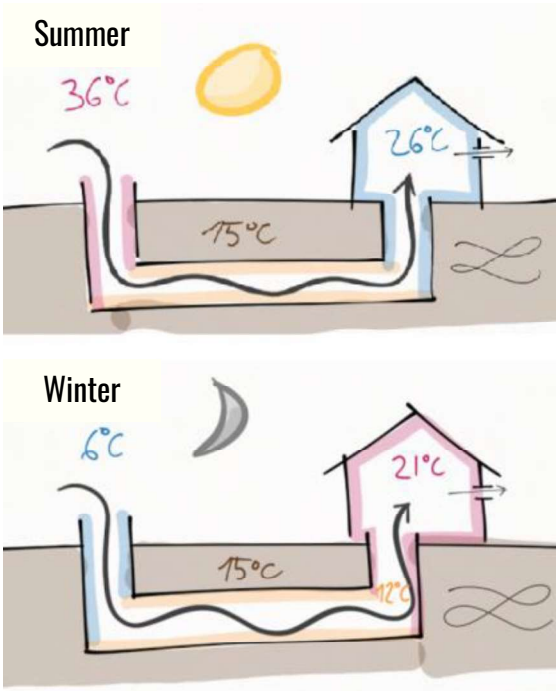
Industry of swine and poultry



What is a Canadian Well?

It is a **system** that uses the **temperature of the subsoil.**

It works as a "**heat exchanger**".



What is a Canadian Well?

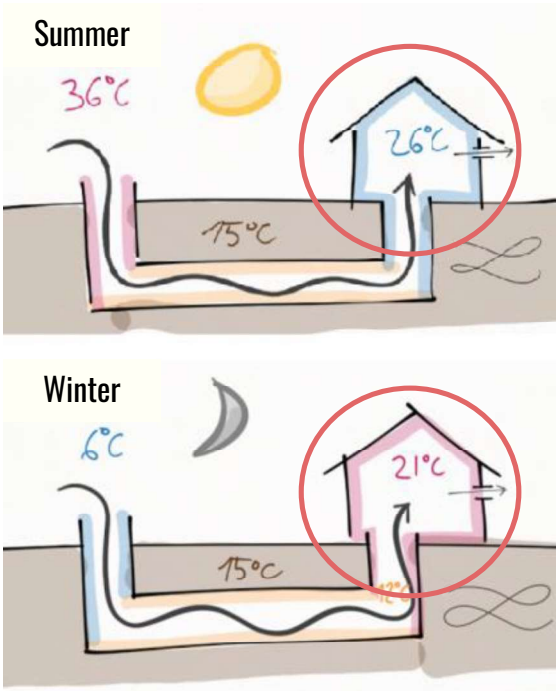
It is a **system** that uses the **temperature of the subsoil.**

It works as a "**heat exchanger**".

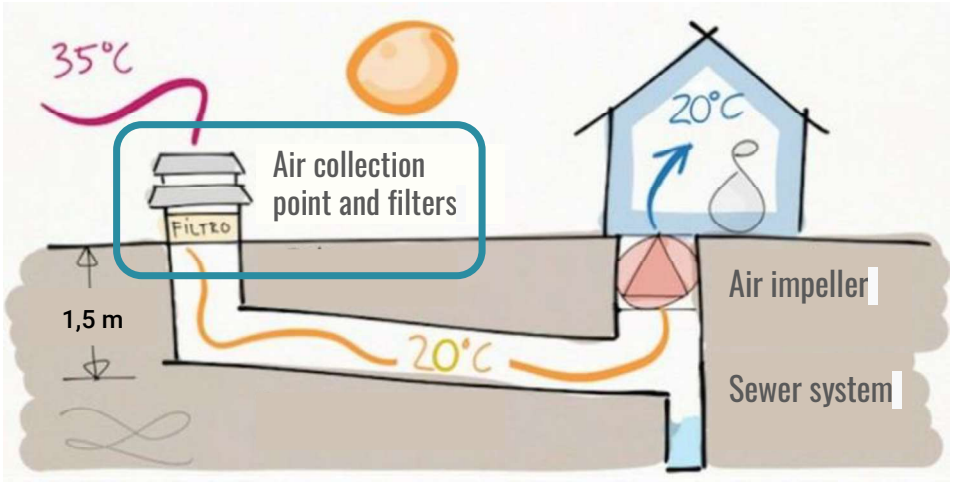
It **reduces the effect of outside air temperature** in summer.

And **increases it during** the winter.

Then **brings it into one place**.



What does it need to implement it?



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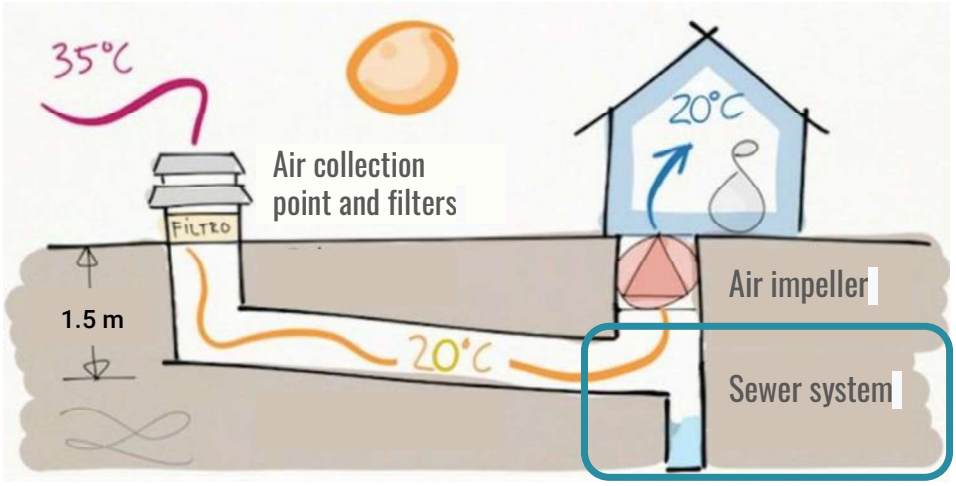

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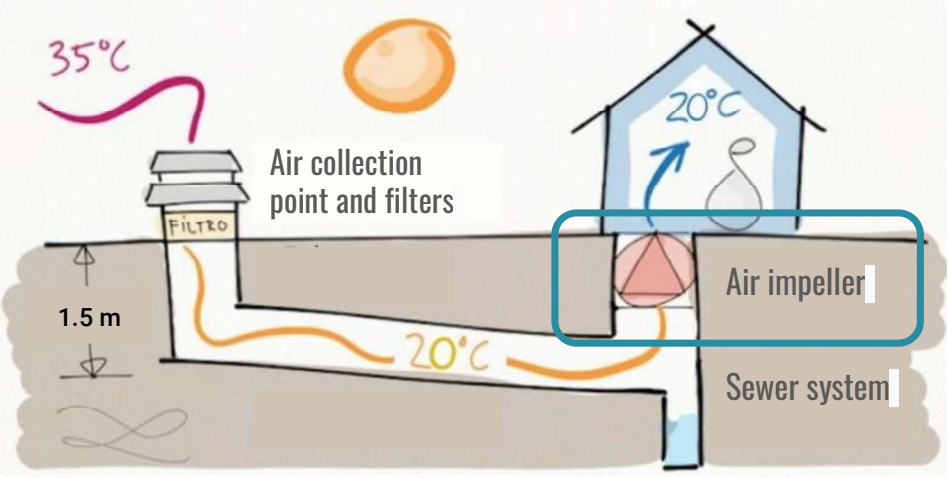

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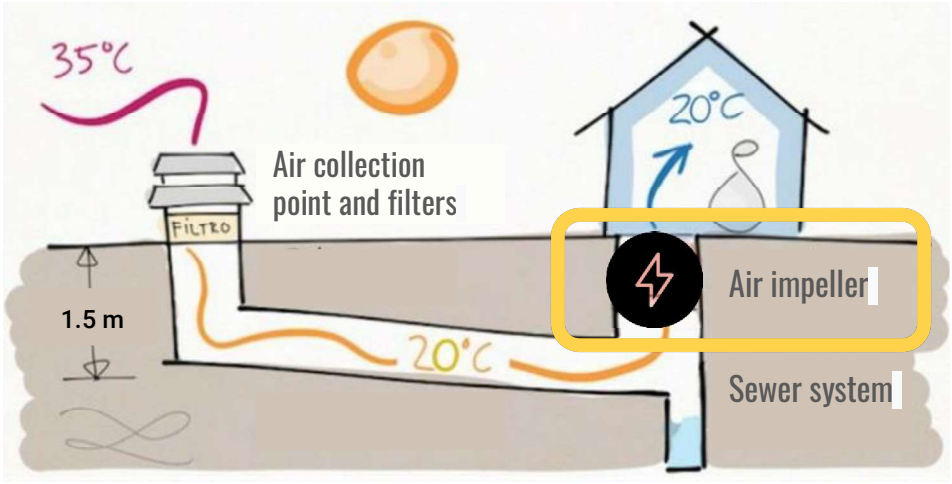
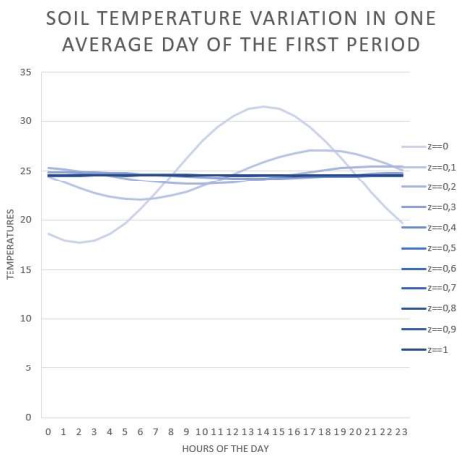
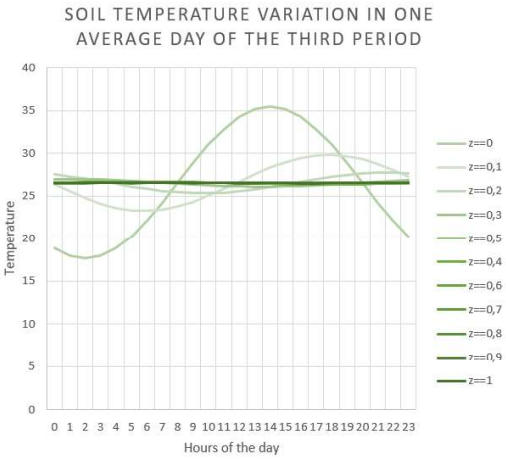


Understand the thermal behavior of the subsoil to know the range of temperatures that workable

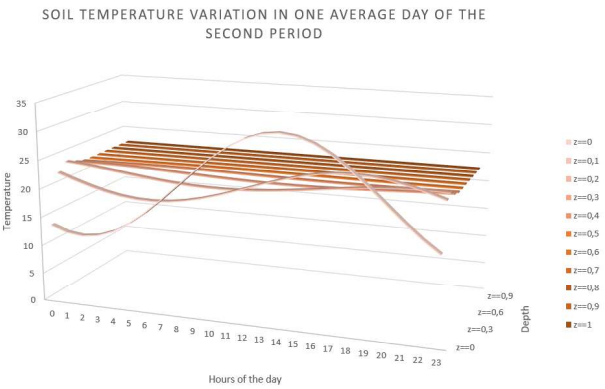
Subsoil temperature: 24.5



Subsoil temperature: 26.5



Subsoil temperature: 22.3



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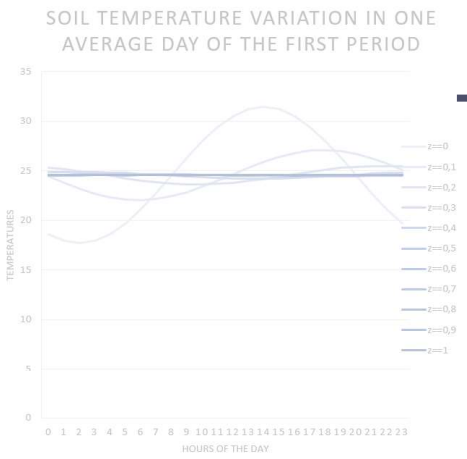

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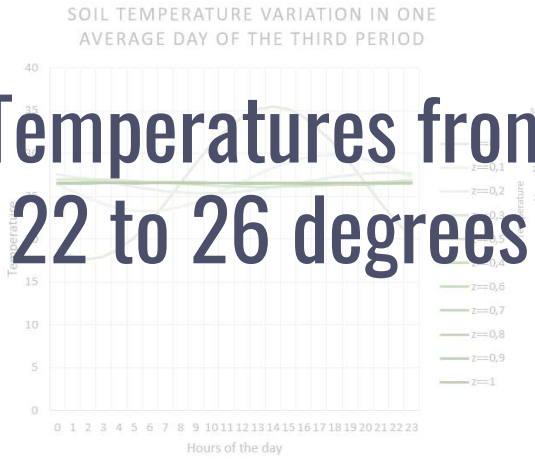
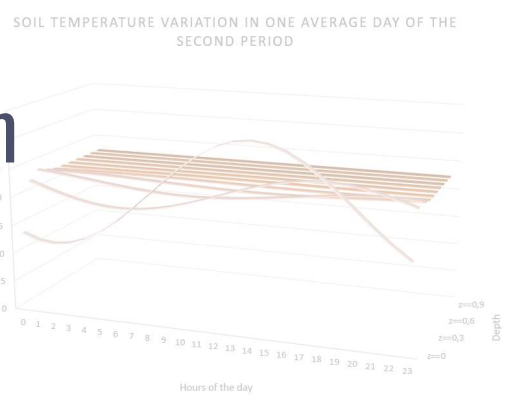


Subsoil temperature: 22.3



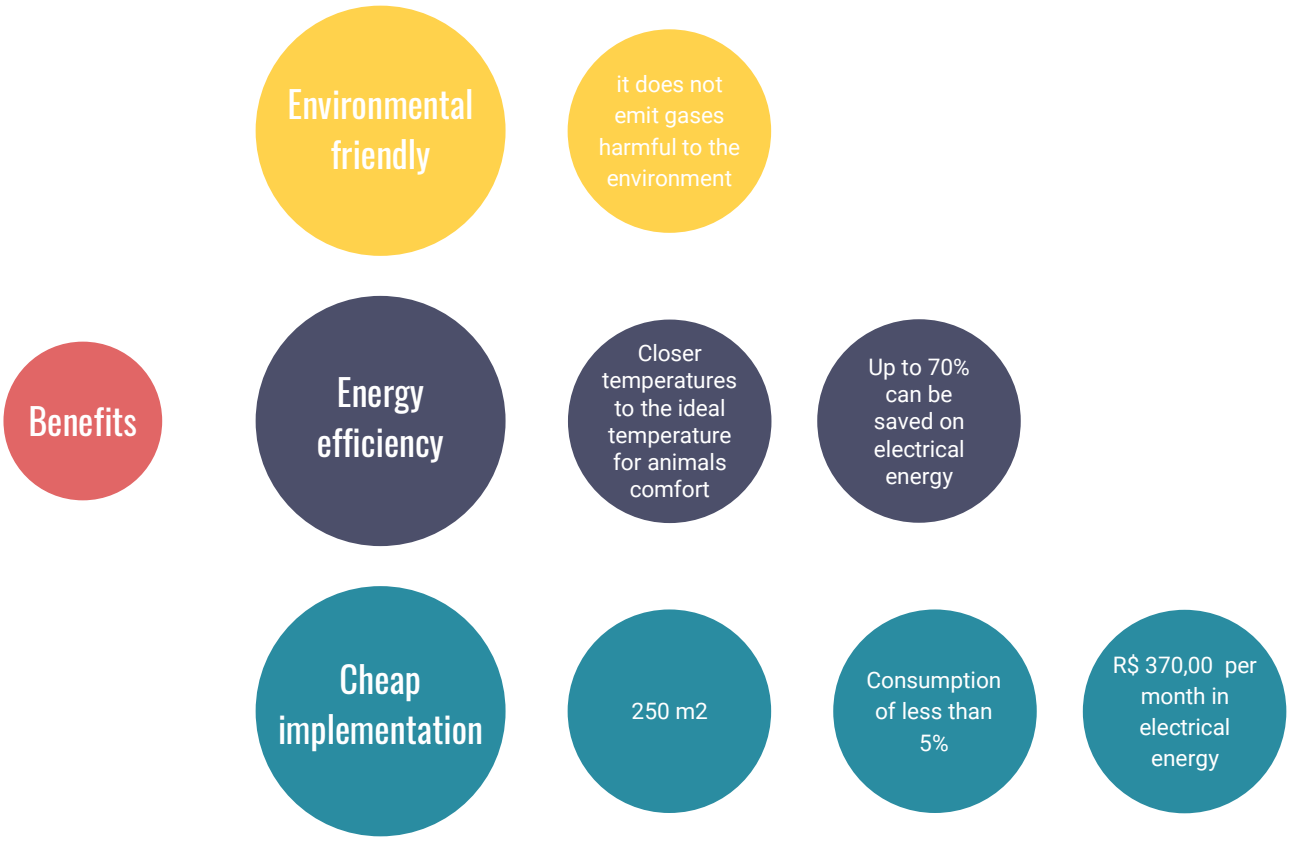
Temperatures from 22 to 26 degrees

Environmental friendly

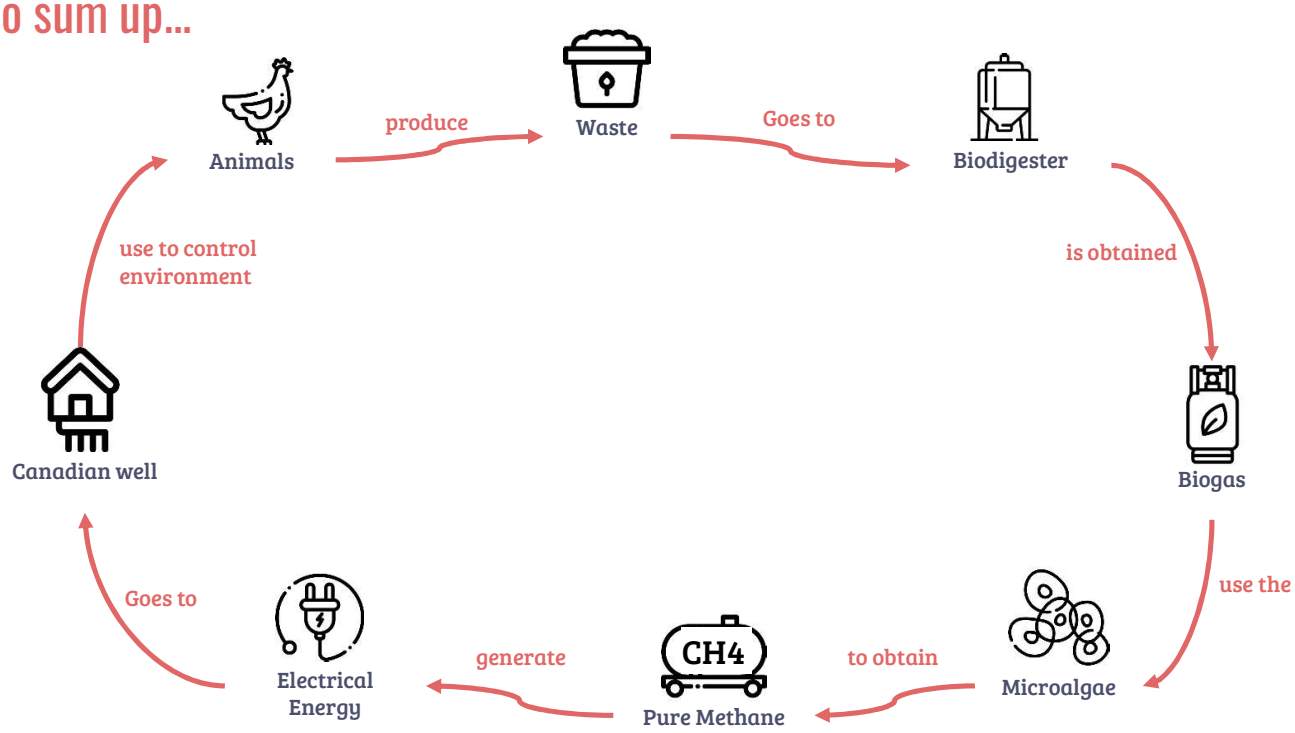
it does not emit gases harmful to the environment

Benefits


Environmental friendly
it does not emit gases harmful to the environment
Benefits
Energy efficiency
Closer temperatures to the ideal temperature for animals comfort
Up to 70% can be saved on electrical energy


Benefits
Environmental friendly
it does not emit gases harmful to the environment
Energy efficiency
Closer temperatures to the ideal temperature for animals comfort
Up to 70% can be saved on electrical energy
Cheap implementation
250 m2
Consumption of less than 5%
R$ 370,00 per month in electrical energy

To sum up...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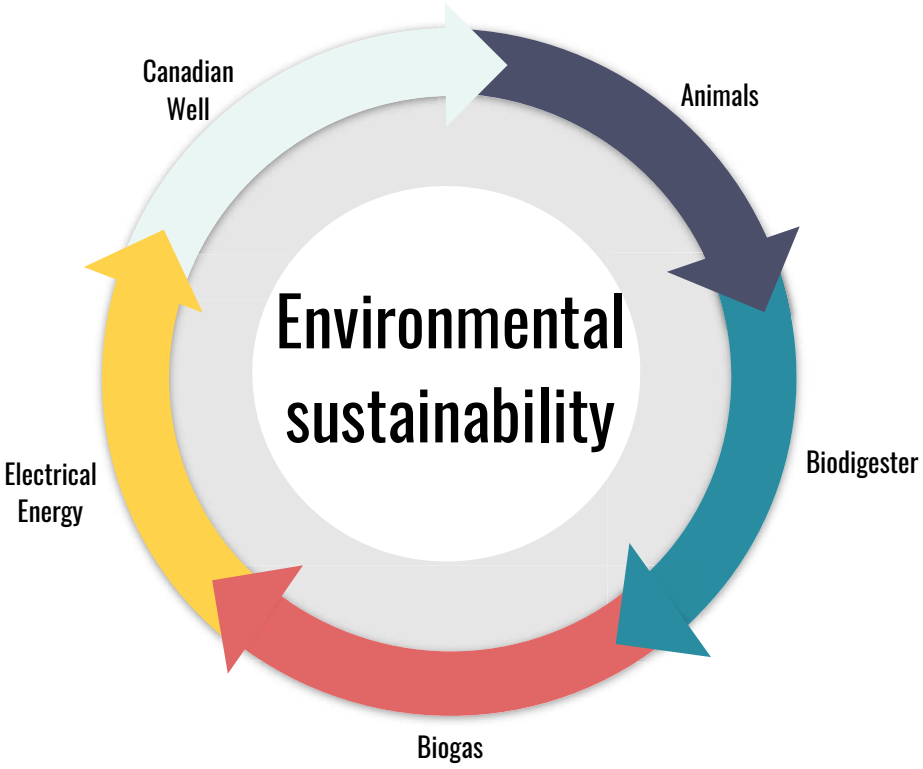
Canadian Well
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VIVA BEM com o que VOCÊ TEM

Ecológica
Climatização | Ozônio | Energia Solar

LATIN AMERICA PRACTICES AND SOFT SKILLS FOR
LAPASSION
AN INNOVATION ORIENTED NETWORK

THANK YOU!

#BADPIGS