C&F Energy

Livestock manure decomposition and valorization

A circular model for food and energy production

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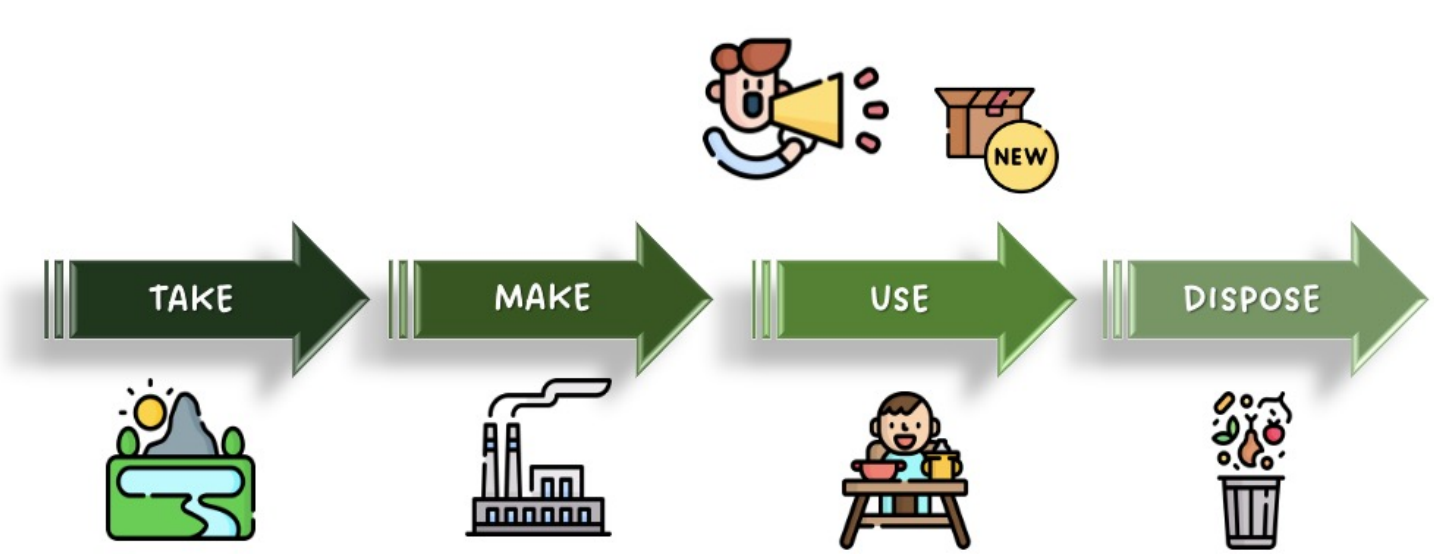
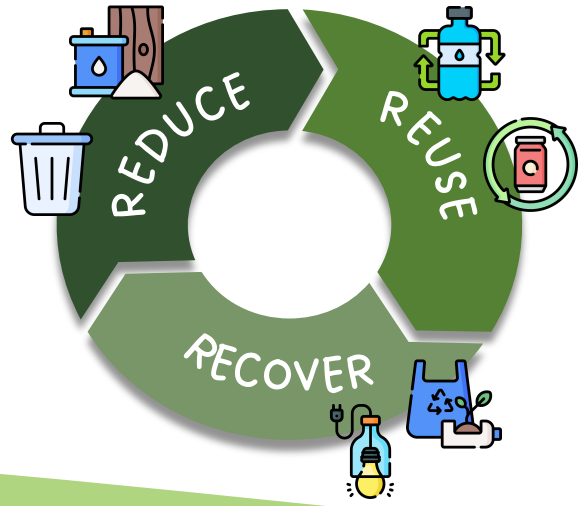
PROBLEM AREA

Linear



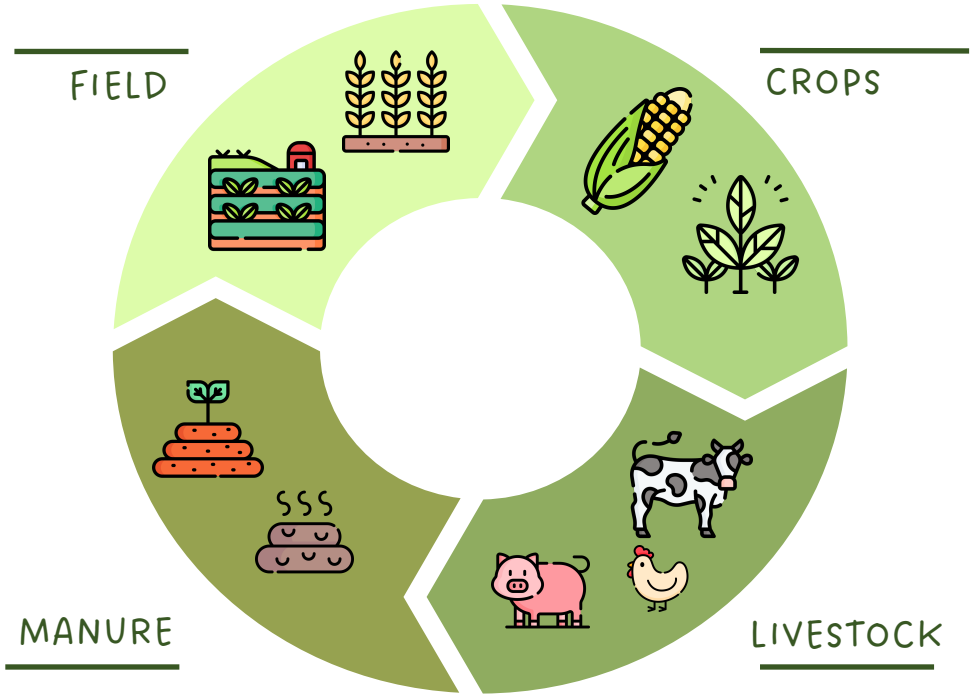
Planned obsolescence

Circular

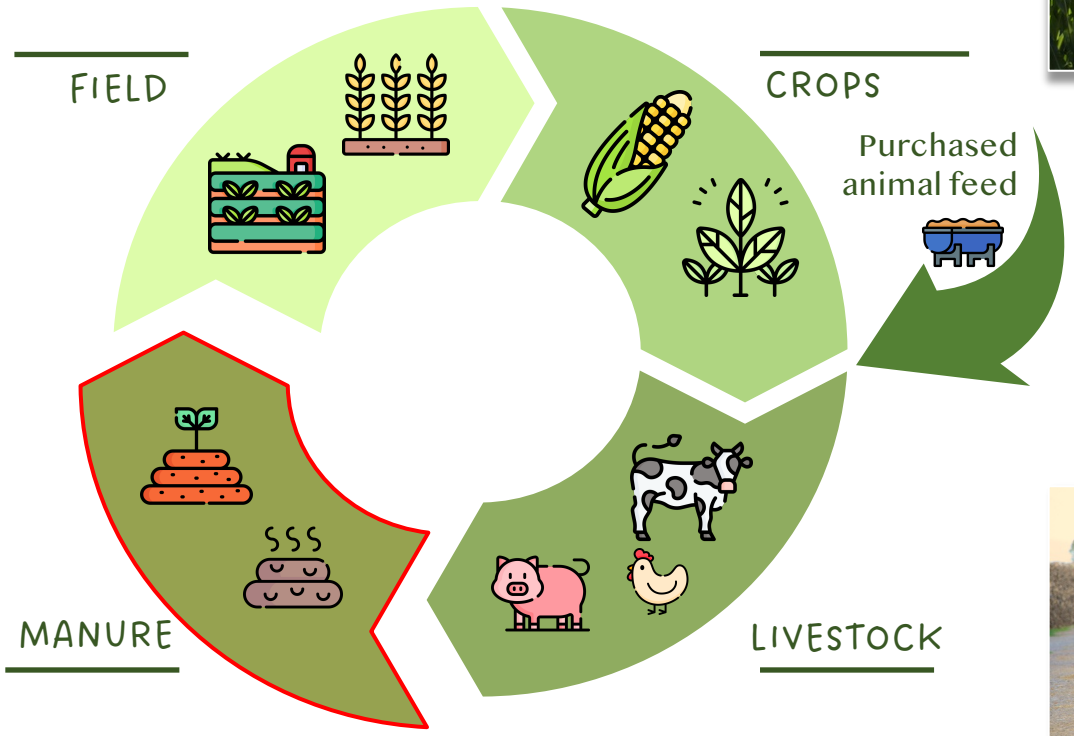


Substitution and dematerialization

PROBLEM SETTING

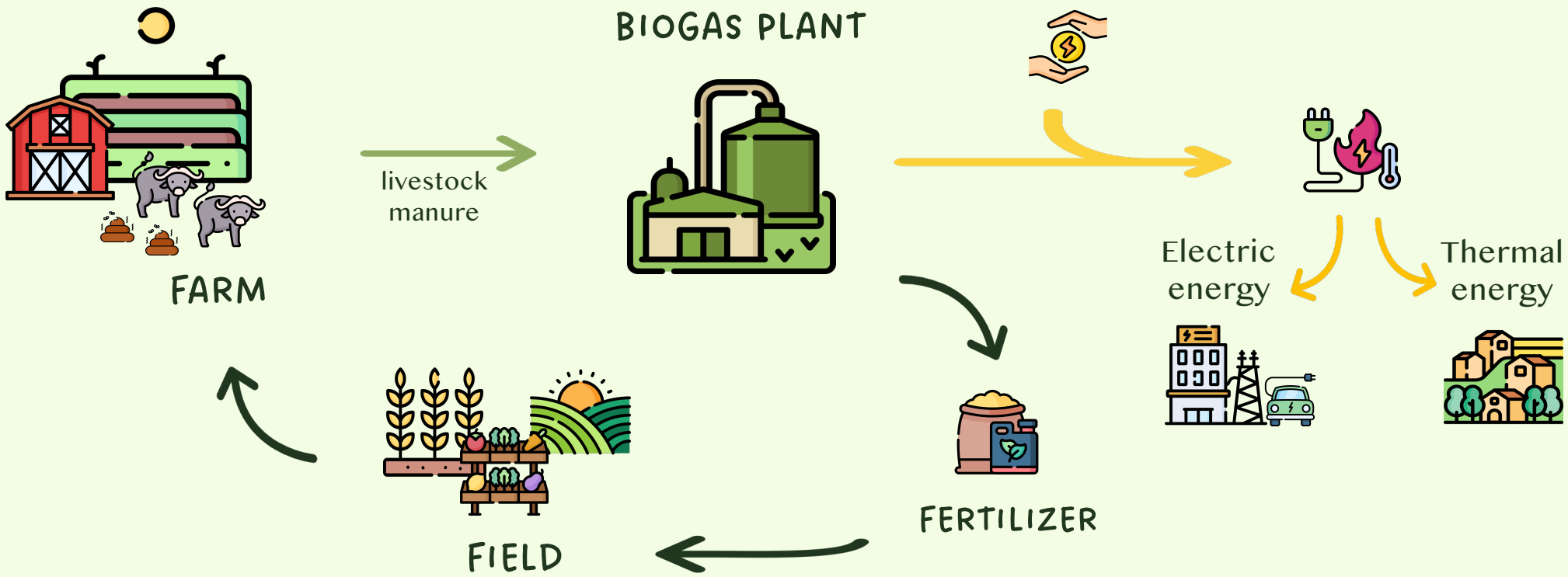


PROBLEM SETTING



PROBLEM SOLVING

Waste = Food: The problem of one sector becomes the solution for another one!



CASE STUDY

Record production of
54 million kilos of Mozzarella di Bufala Campana DOP in 2021

168'710 buffalo milk reared in Campania only

70'000 hectares

CASE STUDY

DOP buffalo mozzarella generates a turnover of **1 billion** and **218 million** euros

DOP accounts for **1.4%** of the total GDP of the two provinces

11'000 employees

2019 SVIMEZ report data

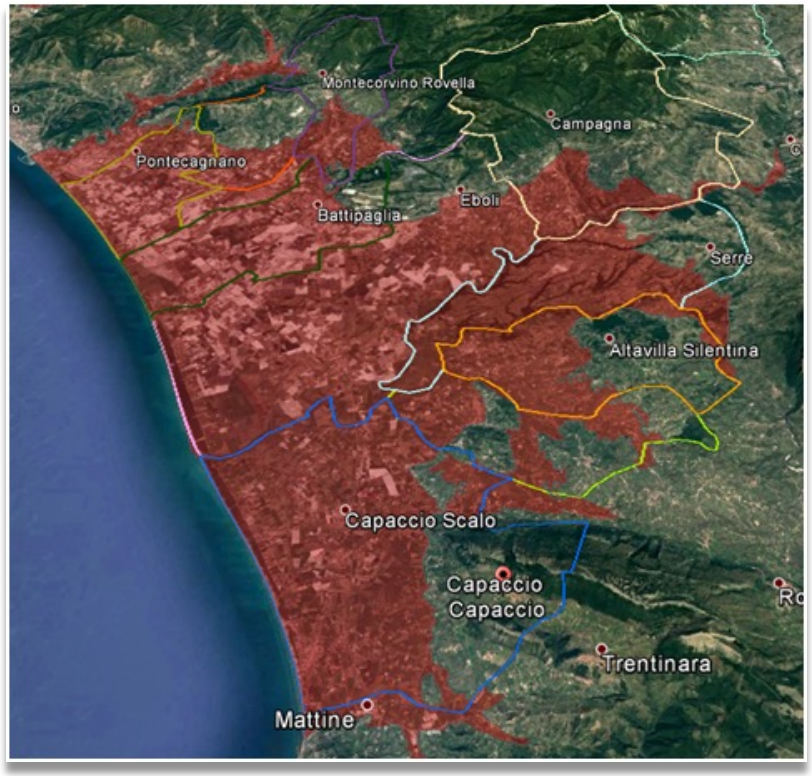
CASE STUDY

most of the areas are nitrates vulnerable

83 kg/N/year in bovine

VS **54 kg/N/year** in buffalo

25'000 hectares of agricultural area where **5'000** hectares are occupied by greenhouses



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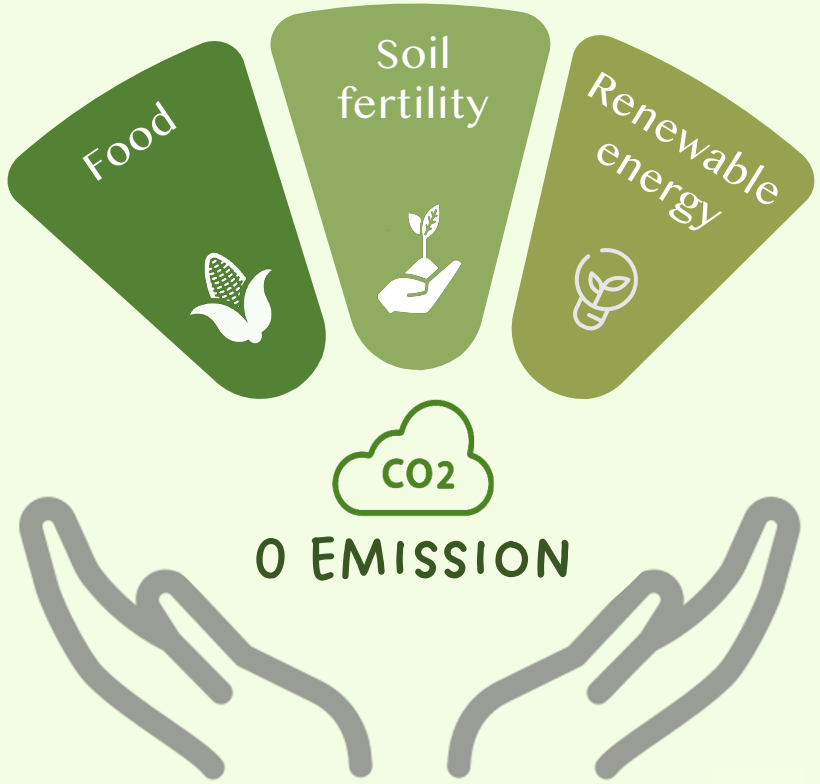
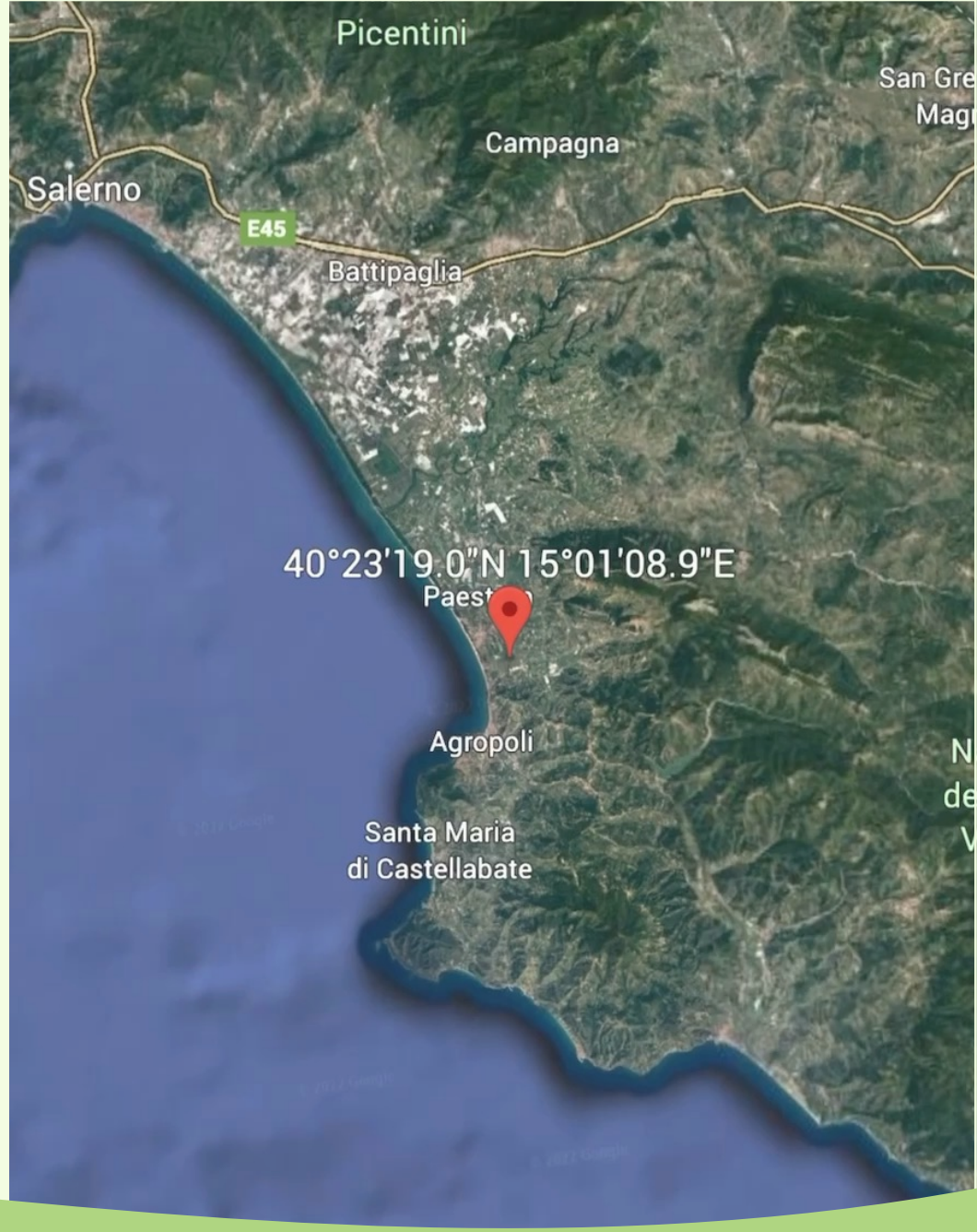
GREEN CIRCLE SYSTEM™
NEW PATENTED TECHNOLOGY

PROJECT TARGET





BIOGAS PLANT

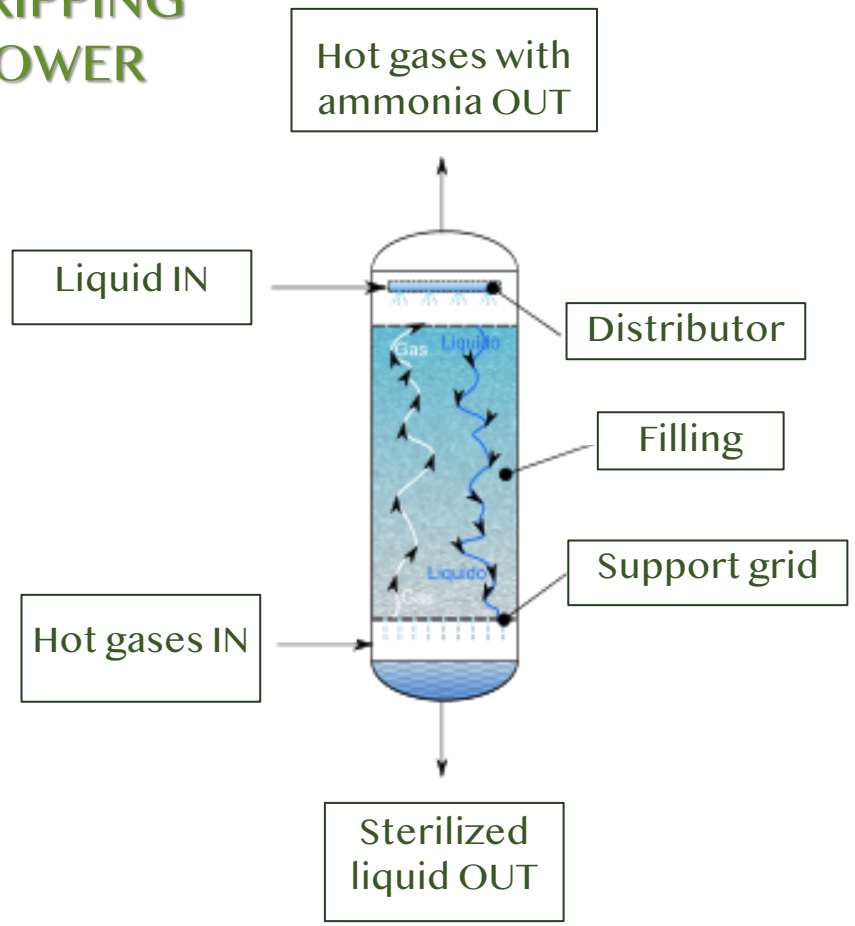
250 kW plant for biogas production

Fresh manure from 2000 buffaloes

2 GWh year of energy produced

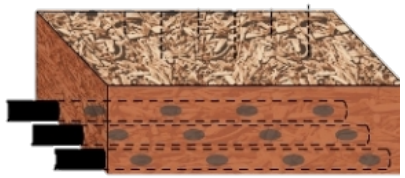
INNOVATION IN DIGESTATE MANAGEMENT

STRIPPING TOWER



INNOVATION IN DIGESTATE MANAGEMENT

INSUFFLATION ROOM



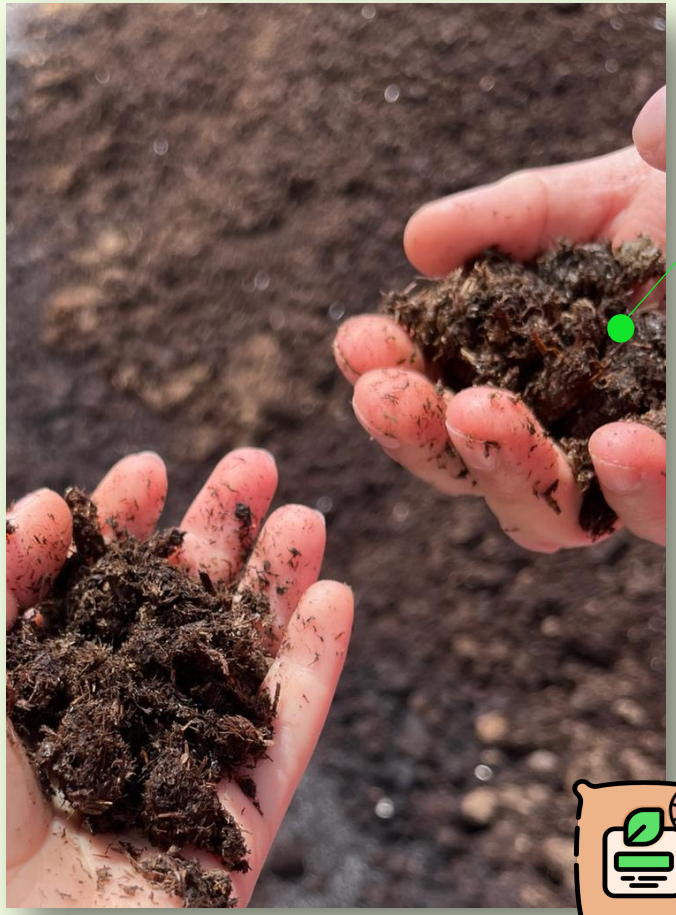
Biofilter technology

Sterilized organic fertilizer OUT

Solid manure acts as filter
that converts the ammonia nitrogen in nitric nitrogen

A bed of micro-perforated pipes

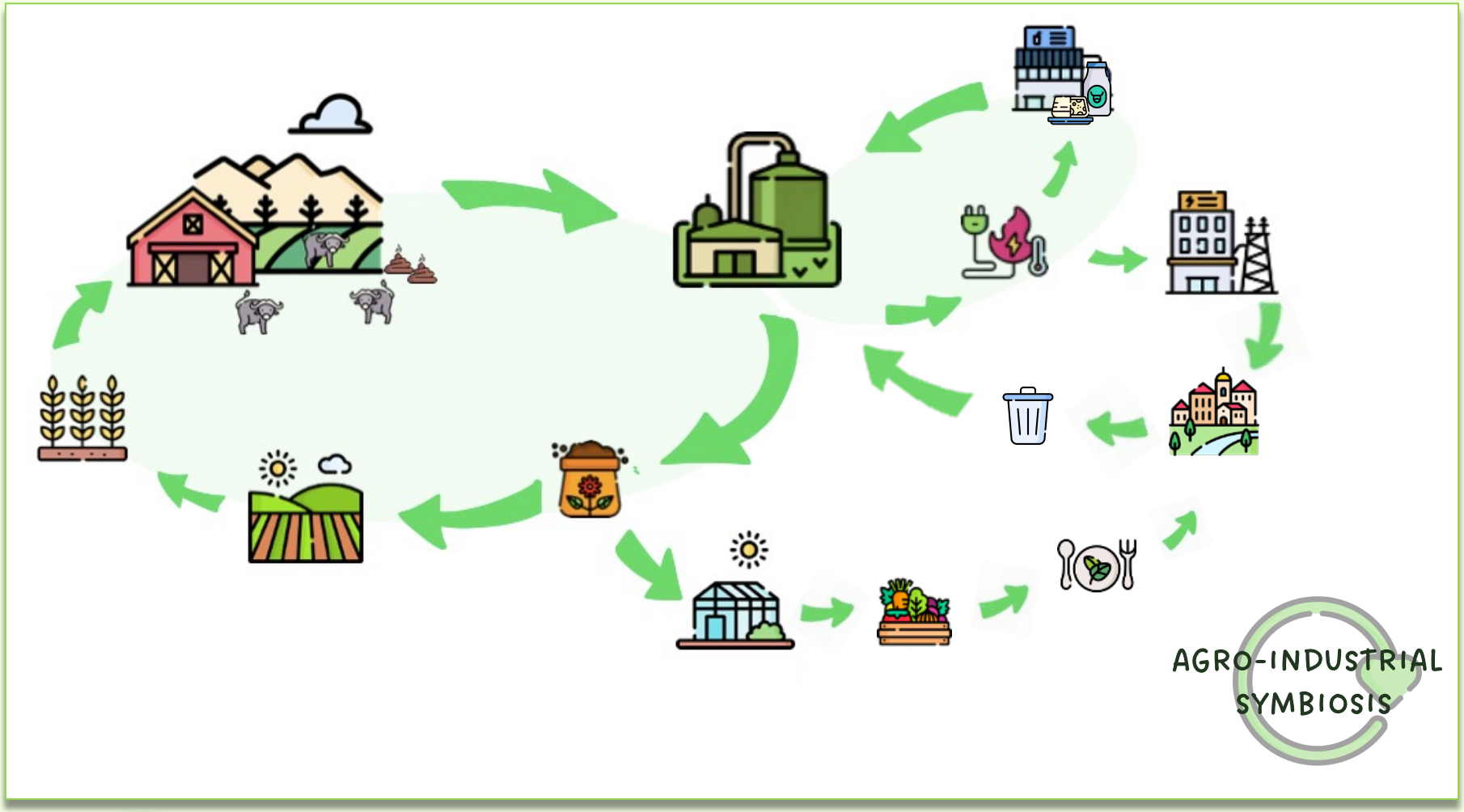
PLANT PRODUCTS



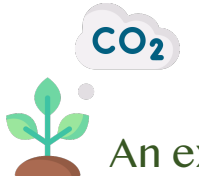
Sterilized compost rich in organic matter and nitric nitrogen

Sterilized and deammonized liquid fraction ready for the fertigation in greenhouses

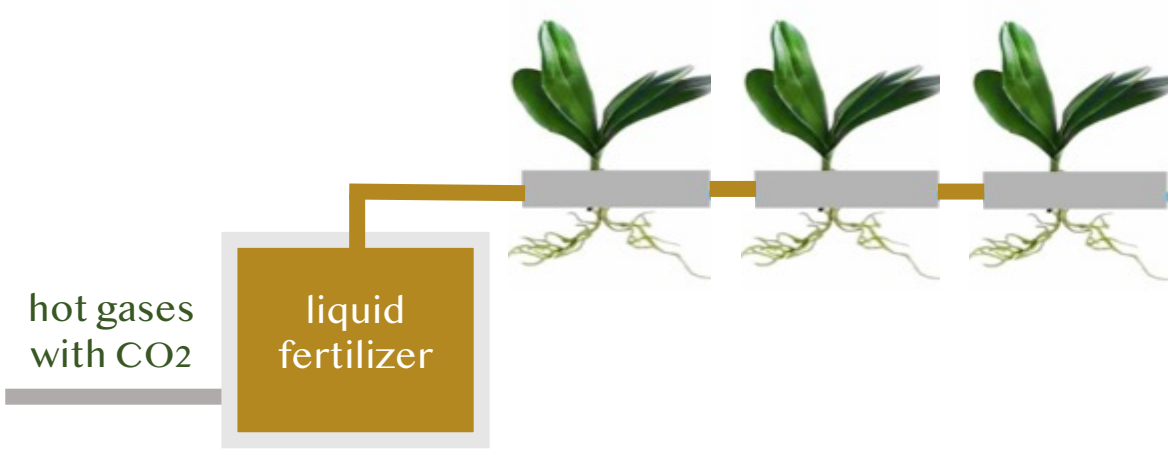
CIRCULAR ECONOMY REALIZATION



FUTURE DEVELOPMENTS



An example of a hydroponic greenhouse for CO_2 recovery



QUESTION OR COMMENT?

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