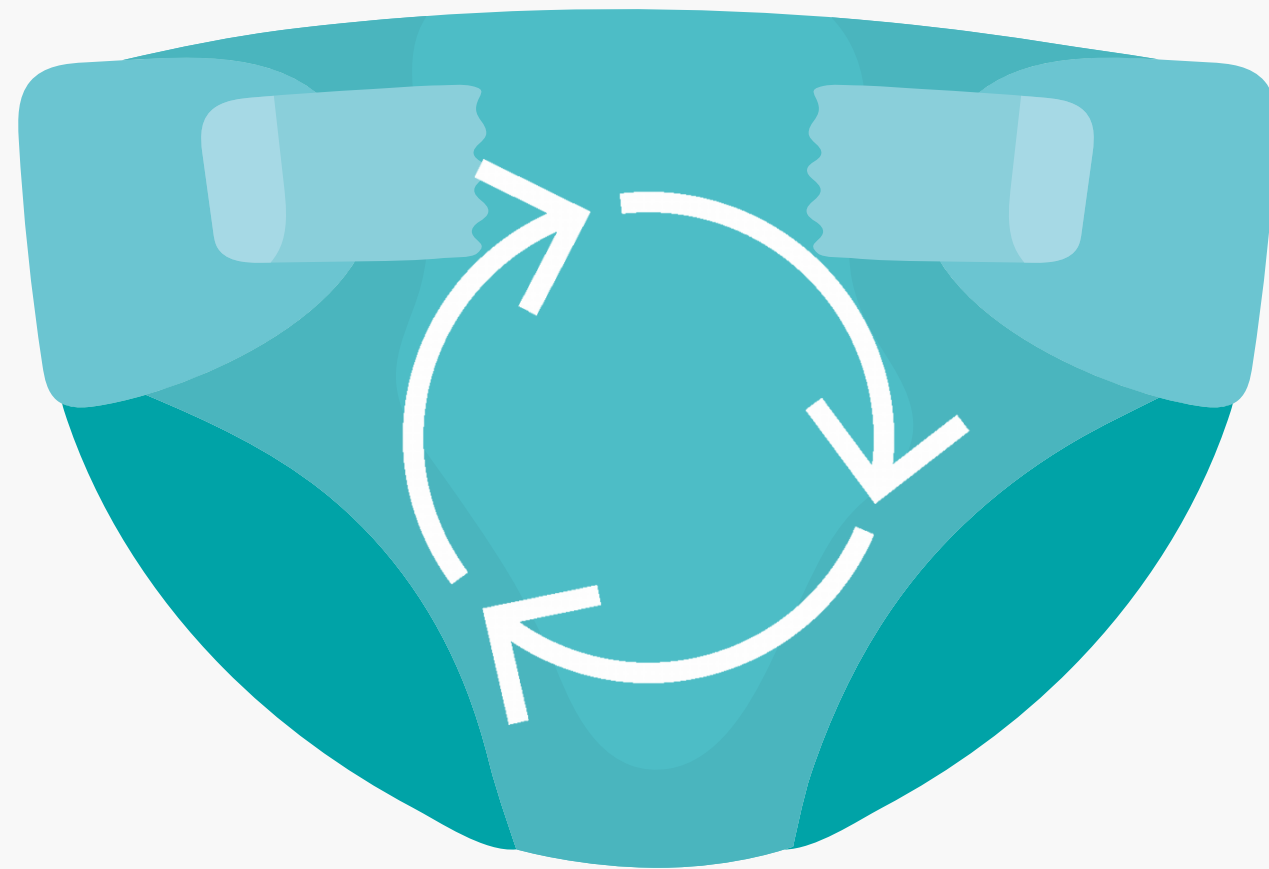




# Hackathon: the circular diaper

Team 7 - FLOSS

# The Circular Diaper Project



FLOSS team for Edena hackaton

**THE  
CIRCULAR  
DIAPER  
PROJECT**

# Meet the team

**Swarno  
Bhattacharya**



Project Manager  
CDP

**Selene  
Lepoutre**



Partnership  
Manager  
CDP

**Lorenzo  
Roveda**



Product expert  
CDP

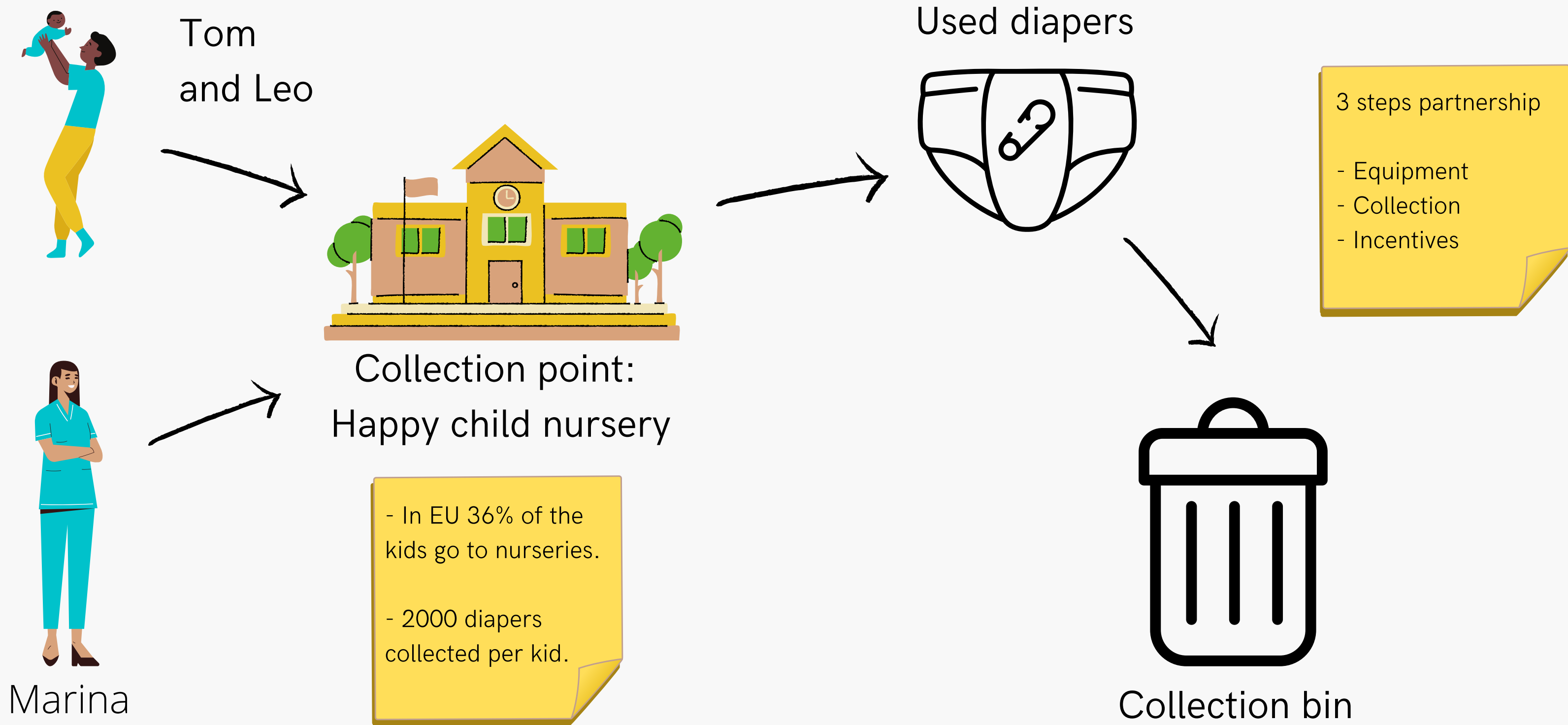
**Flore  
Pradelle**



Marketing  
Manager at a  
diaper company

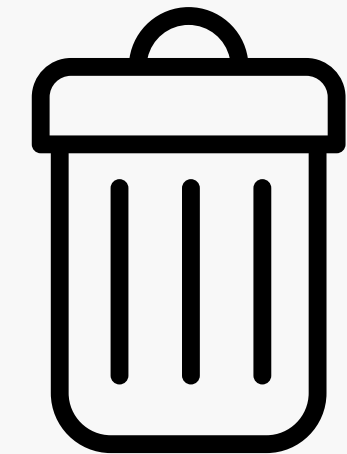
*CDP = "Circular Diaper Project"*

# Collecting the diapers





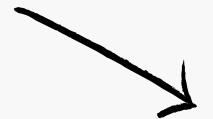
# Transforming the diapers: process



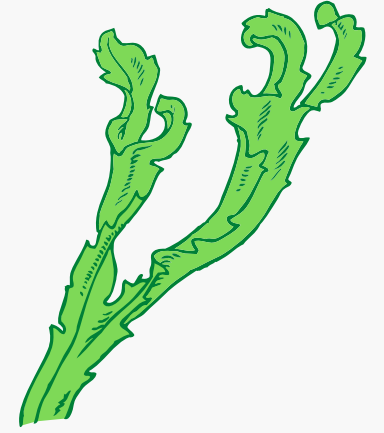
Arival of used diapers



Shredding machine



Algaes and bacterias bath



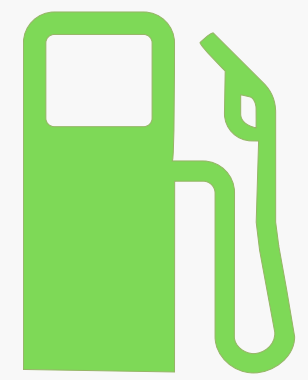
Algaes to be harvested



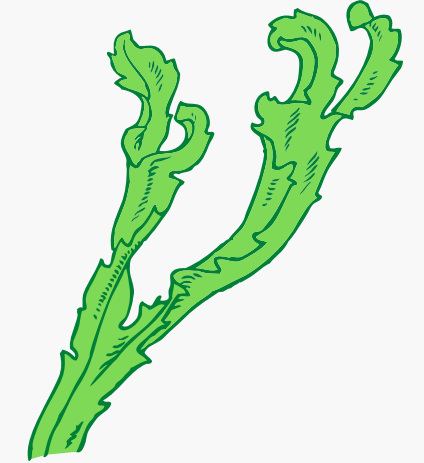
Bioplastic



Biofuel



# Introducing Chlorella Algae



Algae and Cyanobacteria create an ecosystem.

Absorbs plastic and CO<sub>2</sub>.

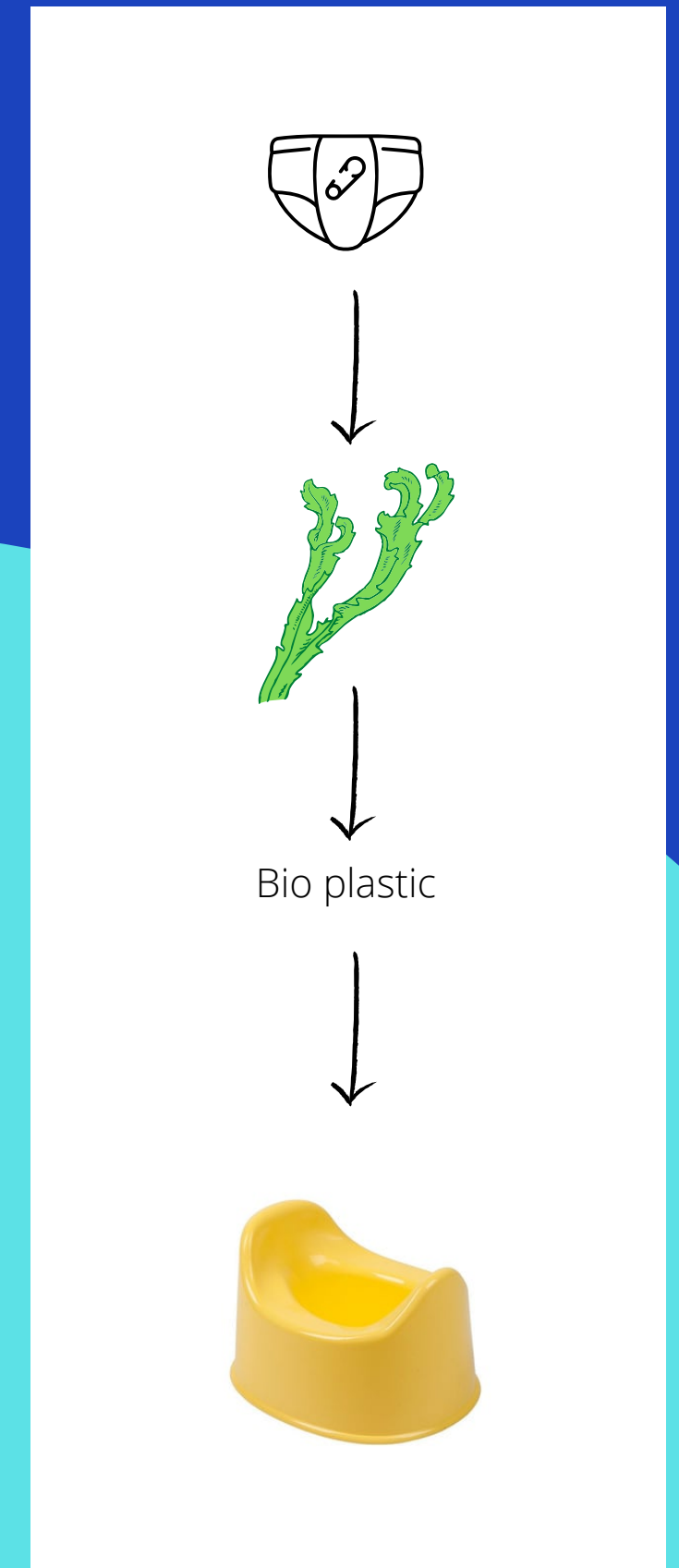
On a global scale microalgae produce more than 75% of the oxygen required for animals and humans.

Used for the generation of Bioplastic & Biofuel.



# New opportunities

- Becoming an industry pioneer in sustainability.
- Great marketing opportunities
- Reaching a new segment (toddlers) and adding a product to our portfolio
- Taxation incentives
- Making money out of waste







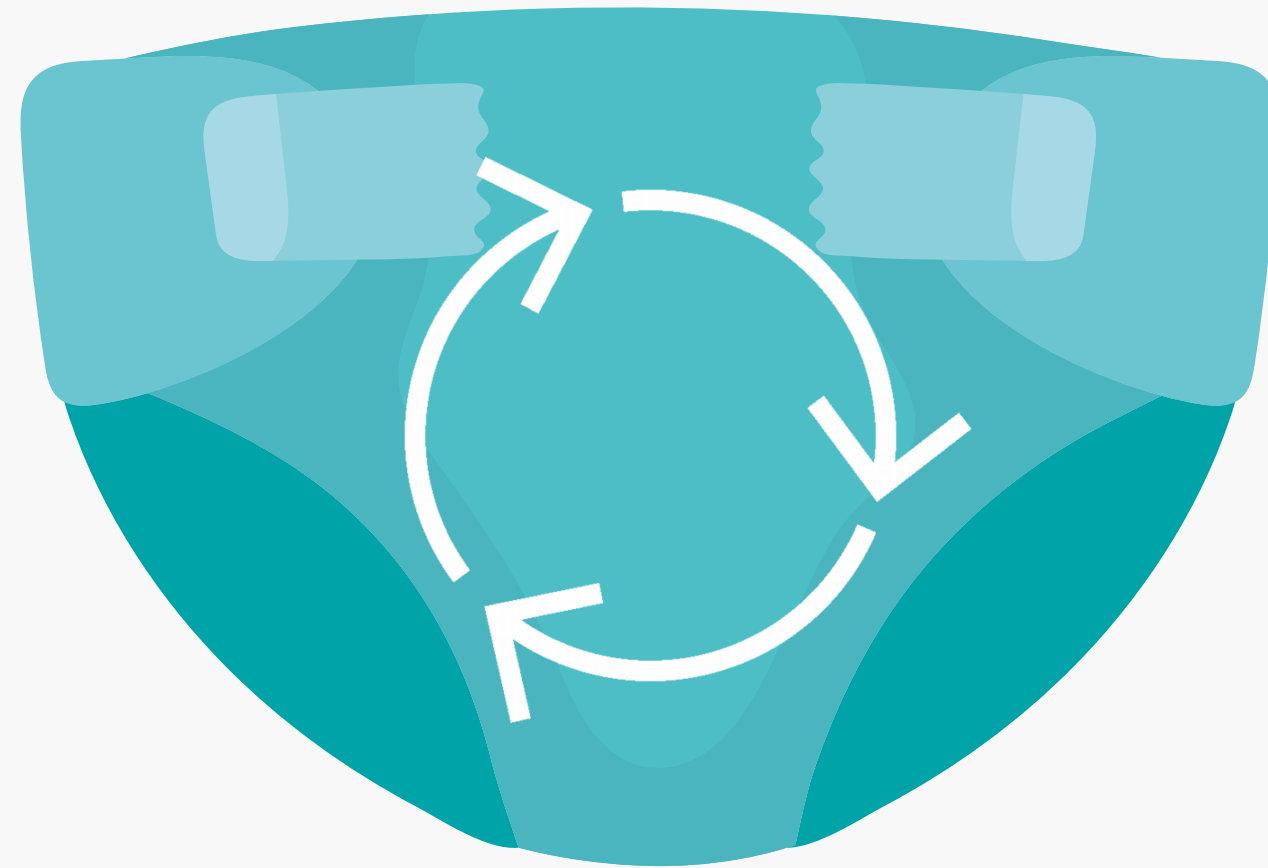
Thank you for listening!

Do you have any

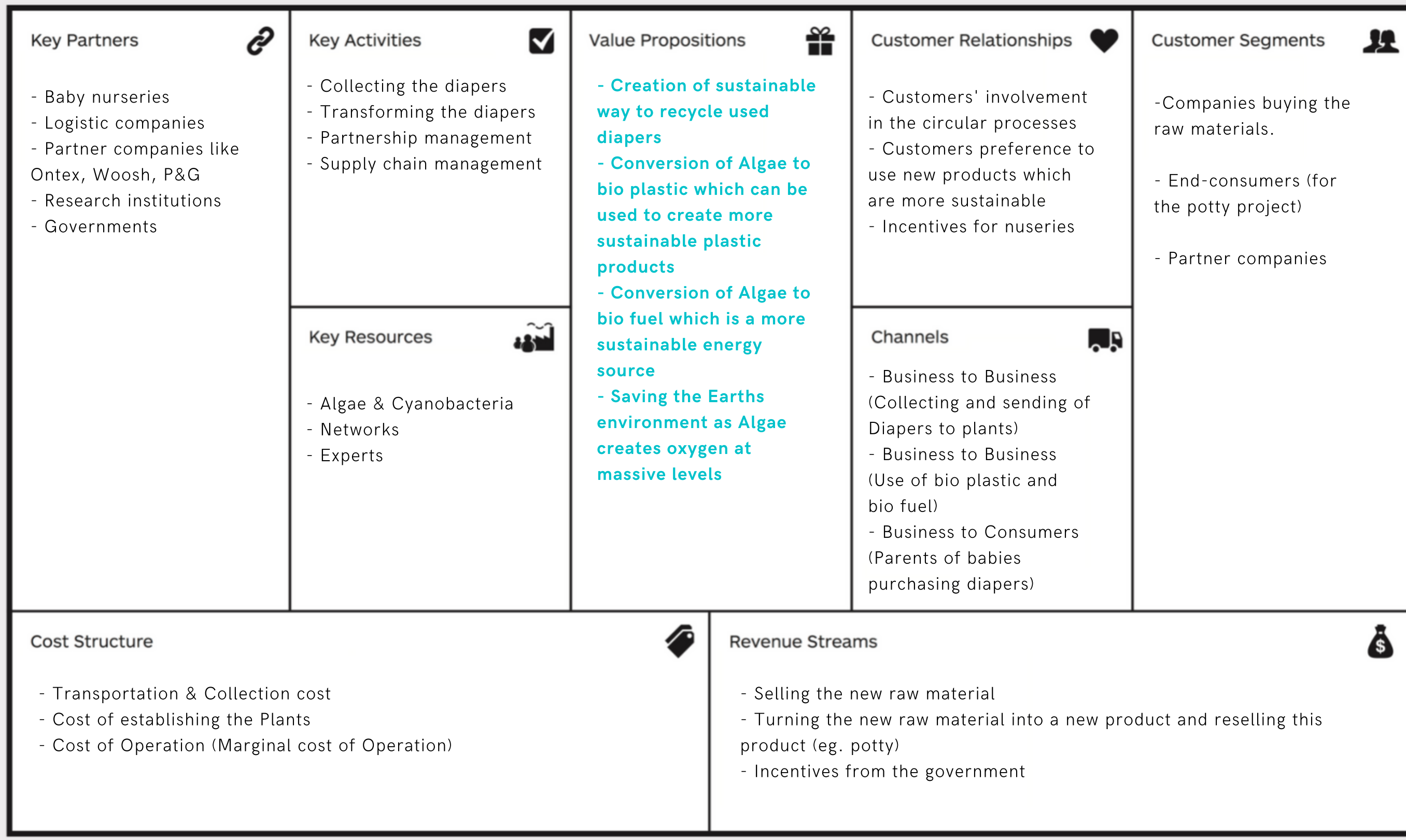
questions ?



# Appendix



# BUSINESS MODEL



# SWOT analysis

## Strength

- Sustainable Process
- Creation of a circular business model for diapers
- Obtaining bioplastic and renewable energy in biofuel

## Weakness

- Expensive technology (currently)
- Requires a lot of space

## Opportunities

- Mass scale expansion
- Government funding and tax incentive
- Mass awareness and brand preferability

## Threats

- Climate change (optimal temperatures required)

# Alternative solutions



Researches proved that **Pleurotus ostreatus** fungi can degrade 90% of the mass and volume of diapers in 70 days. The fungi are edible and can be used to extract proteins and other nutrients.

A second solution is to obtain **BioHydrogen** from diapers, based on the solid substrate anaerobic hydrogen fermentation with intermittent venting and headspace flushing.



# References

1. [Review](#) of plastic biodegradation and bioplastic production techniques using algae, to solve the increased global plastic waste.
2. [Different approaches](#) for composting diapers
3. [Bioplastic production from microalgae](#)
4. [A state of the art review](#) on the cultivation of algae for energy and other valuable products: Application, challenges, and opportunities.
5. [Production of bioplastic using Spirulina](#) platensis and comparison with commercial plastic
6. [Microalgae to biofuels](#): 'Promising' alternative and renewable energy, review
7. [Hints at the Applicability](#) of Microalgae and Cyanobacteria for the Biodegradation of Plastics
8. [Biohydrogen production from used diapers](#)
9. [Abiotic and Biotic Degradation of Oxo-Biodegradable Plastic Bags by Pleurotus ostreatus](#)

# References

10. [Bioplastics and their thermoplastic blends from Spirulina and Chlorella microalgae](#)
11. [Microalgae as bioreactors for bioplastic production](#)
12. [Degradation of Green Polyethylene by Pleurotus ostreatus](#)