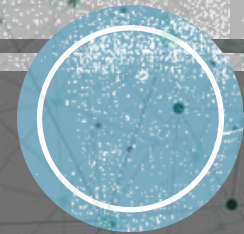


# ADDRESSING EXCESS PET-TYPE PLASTIC WASTE IN VIALE: USING A PLASTIC EXTRUDER MACHINE FOR RECYCLING AND MANUFACTURING



National Technological University

Paraná Regional School

Electromechanical Engineering Department

Inglés I

Academic Year: 2023

Members: Contardi Facundo. Kemerer Mariano

This work is an EFL engineering student project. The pictures and content in this presentation are only used for educational purposes. If there is any copyright conflict, they will be immediately removed.



# Introduction



# Introduction



## VIALE

### Its problems with polymers

- Massive accumulation in the environment
- The non-readiness of plastic to biodegrade
- One waste separation chamber
- 14,000 inhabitants



## What is the purpose of this presentation?

- To address the issue of plastic accumulation in Viale



## What is the proposed solution?

- Our project seeks to present an innovative waste recycling method to the city of Viale.
- We propose the use of a polymer extruder machine.
- This device may also generate income from the resulting product.



# Introduction



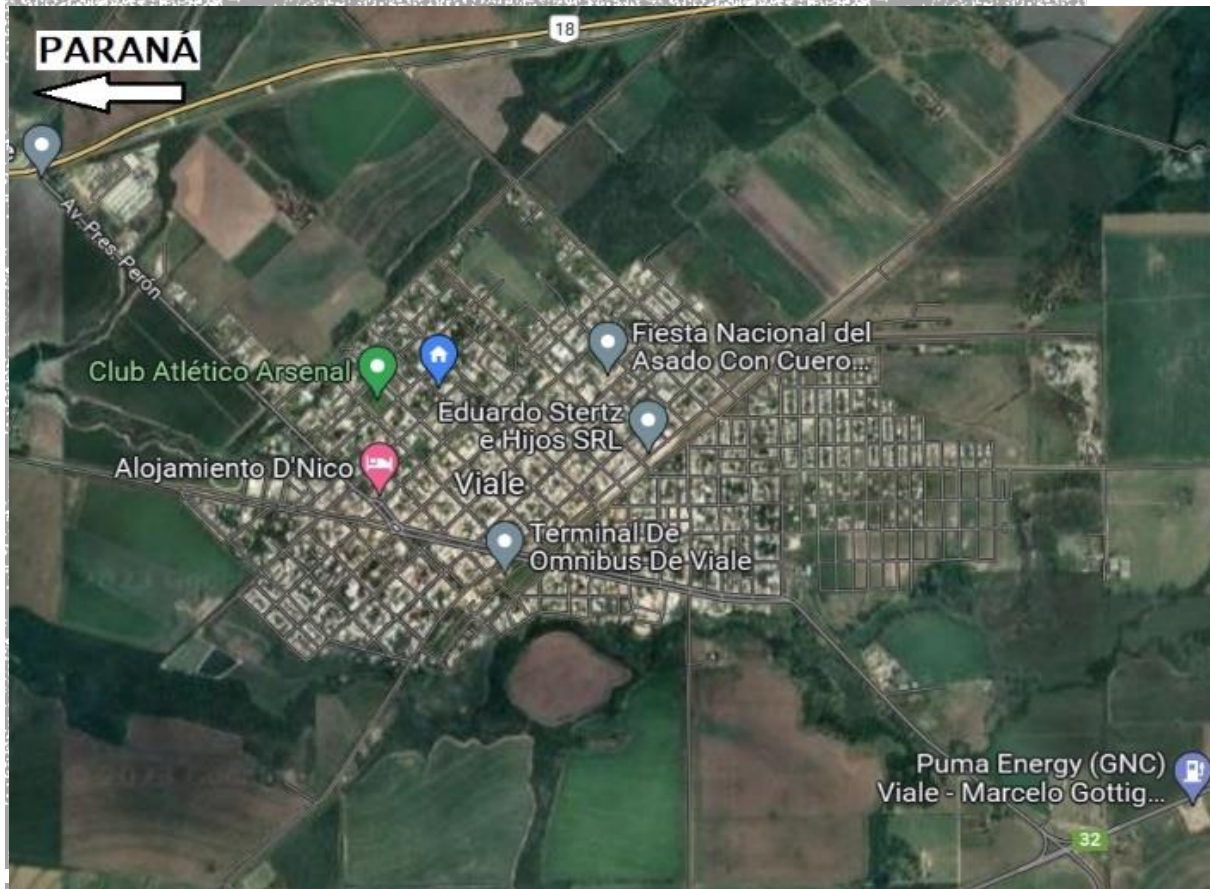
- ❑ Description of the Context
- ❑ Problem Statement
- ❑ Description of Scenes that Help Picture the Problematic Situation
- ❑ Identification and Analysis of the Causes that Give Rise to the Problem
- ❑ Identification and Description of the Consequences
- ❑ Problem Approach
- ❑ Strengths and Weaknesses of the Proposal

# Problem Definition and Analysis: Description of the Context



# Description of the Context

## Map of Viale

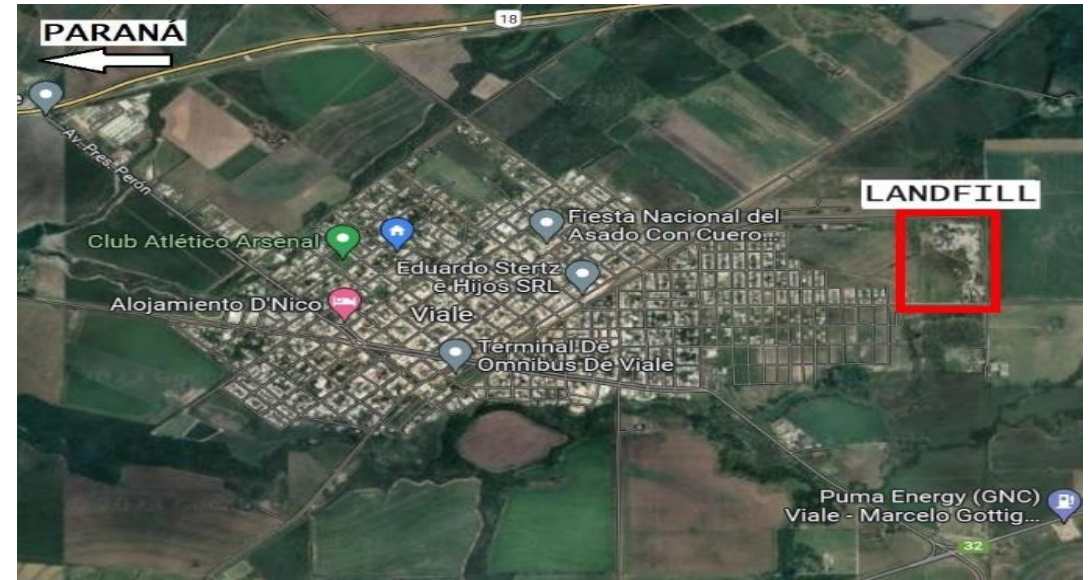
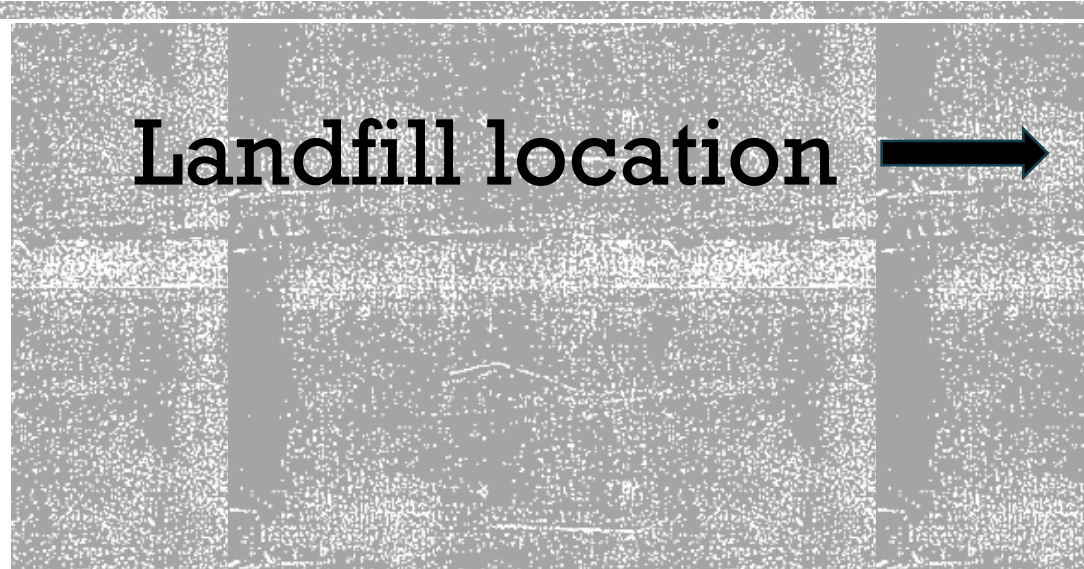


## Garbage collection sectors





# Description of the Context



Houses' proximity with the landfill

# Problem Definition and Analysis: Problem Statement

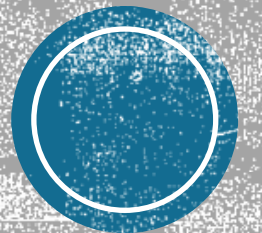


# Plastic Management in Viale

- **Excessive presence of plastics**
- **Inadequate plastic management**
- **Accumulation of plastic waste**
- **Aggravated by lack of waste management.**



# Problem Definition and Analysis: Description of Scenes that Help Picture the Problematic Situation



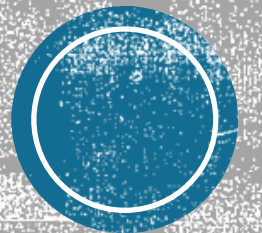
# Description of Scenes that Help Picture the Problematic



- ❖ Highly polluted water stream
- ❖ Mini garbage dump in the street
- ❖ Fire in the dump



# **Problem Definition and Analysis: Identification and Analysis of Causes or Factors That Give Rise to the Problem**



Identification and Analysis of Causes or Factors that Give Rise to the Problem

# **Factors Contributing to Plastic Pollution**

- **Increased plastic consumption**
- **Limited sustainable alternatives**
- **Lack of proper information**



# Problem Definition and Analysis: Identification and Description of the Consequences





## Effects of Plastic Pollution

- **Visual pollution**
- **Flooding hazards**
- **Air quality and health impacts**

**Drains clogged with garbage**



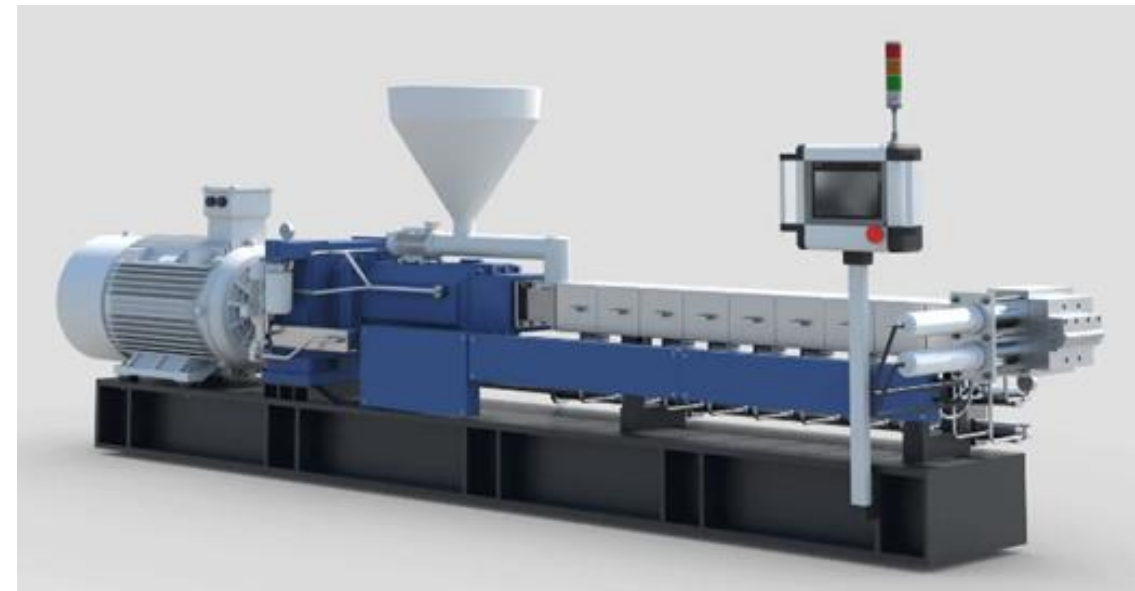
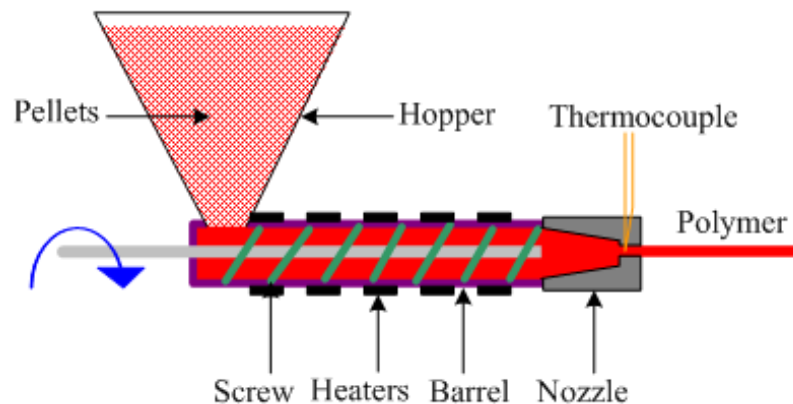
# Problem Approach



## What is a PET Extruder?

- **Definition**
- **Extrusion process**
- **End products**

Extrusion of polymers



**Extruder Machine**



# Strengths and Weaknesses of the Proposal

- **Strengths:**
  - Efficiency in recycling
  - Product versatility
  - Waste reduction
  - Promotion of the circular economy
- **Weaknesses:**
  - Energy requirements
  - Limitations on waste composition
  - Possible contamination in recycling



# Conclusion



# Conclusion

**What is the problem?**



- ❖ Excessive generation of waste
- ❖ Poor waste management

**What do we propose?**



- ❖ The implementation of a PET extruder machine
- ❖ Versatile manufacturing
- ❖ Weaknesses analysis

**What is the path to sustainability?**



- ❖ Holistic solution
- ❖ Sustainable foundations

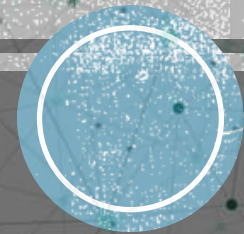


# References

- [1] “BL series - Extrusora para la industria del plástico by Banline Pipeline Engineering Technology Co.Ltd | DirectIndustry,” [www.directindustry.es](http://www.directindustry.es). <https://www.directindustry.es/prod/banline-pipeline-engineering-technology-cold/product-223446-2382473.html> (accessed Oct. 13, 2023).
- [2] A. Масюк, “Features of Extrusion on Twin Screw Extruders - Replast,” Apr. 02, 2020. <https://www.replast-ltd.com/en/features-of-extrusion-on-twin-screw-extruders/> (accessed Oct. 13, 2023).



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