

Textile Pollution Reduction: Circular Economy in the Textile Industry

Members of group:

- Paolo Maldonado
- Martin Paniagua

Universidad Tecnológica Nacional, Facultad Regional Paraná
Electromechanical Engineering Department



Contextualization



Introduction



**FAST
FASHION**



It is necessary to stop the
environmental impact.

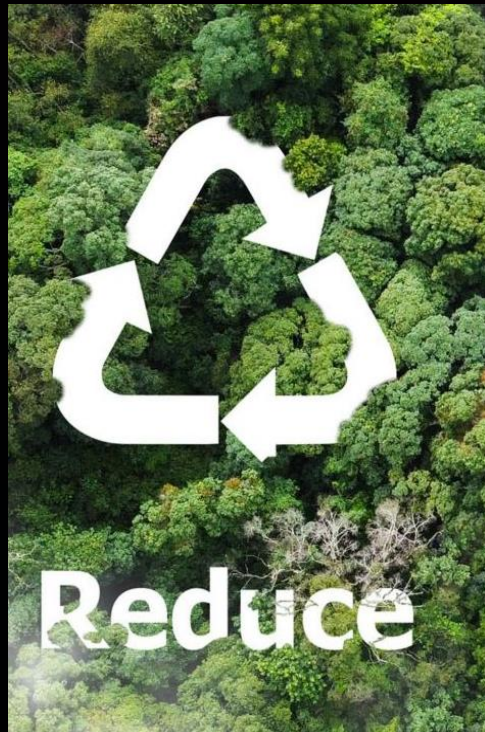
Inglés II
2023

Thesis Statement



Introduction

The importance of circular economy to reduce waste generation

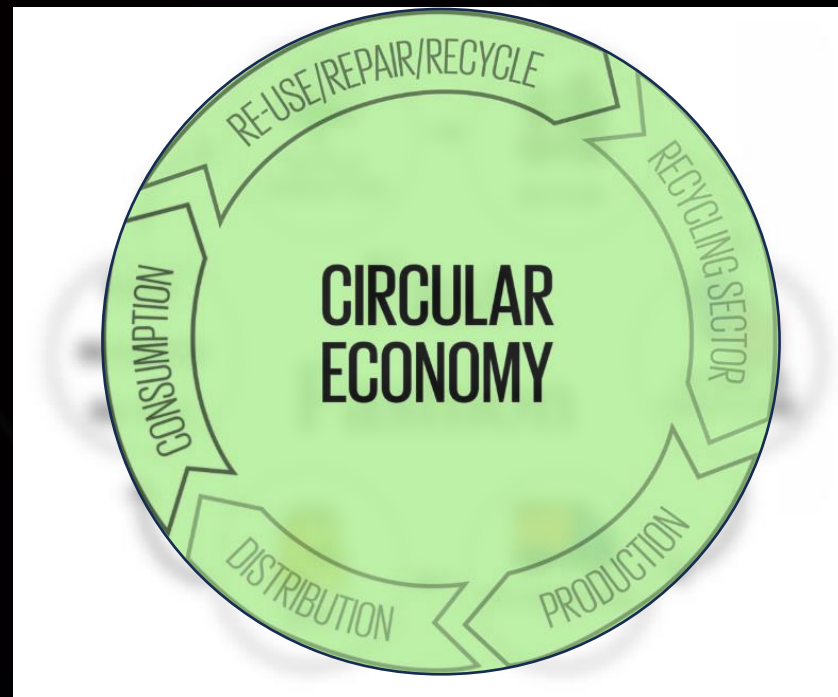


Purpose



Introduction

To discuss the inclusion of circular economy in textile industry



Inglés II
2023

Map of the Presentation



Introduction

The Problem

- **Fast Fashion**
- **Causes and Consequences of Fast Fashion**

The Solution

- **Circular Economy**
- **Types of Circular Economy**

The Analysis

- **Feasibility of Economies Implementation**

Contribution

- Analyze the environmental impact of the textile industry.
- Demonstrate the importance of circular economy in the industry.
- Promote the inclusion of circular economy in the field of electromechanical engineering.



Textile Production Pollution

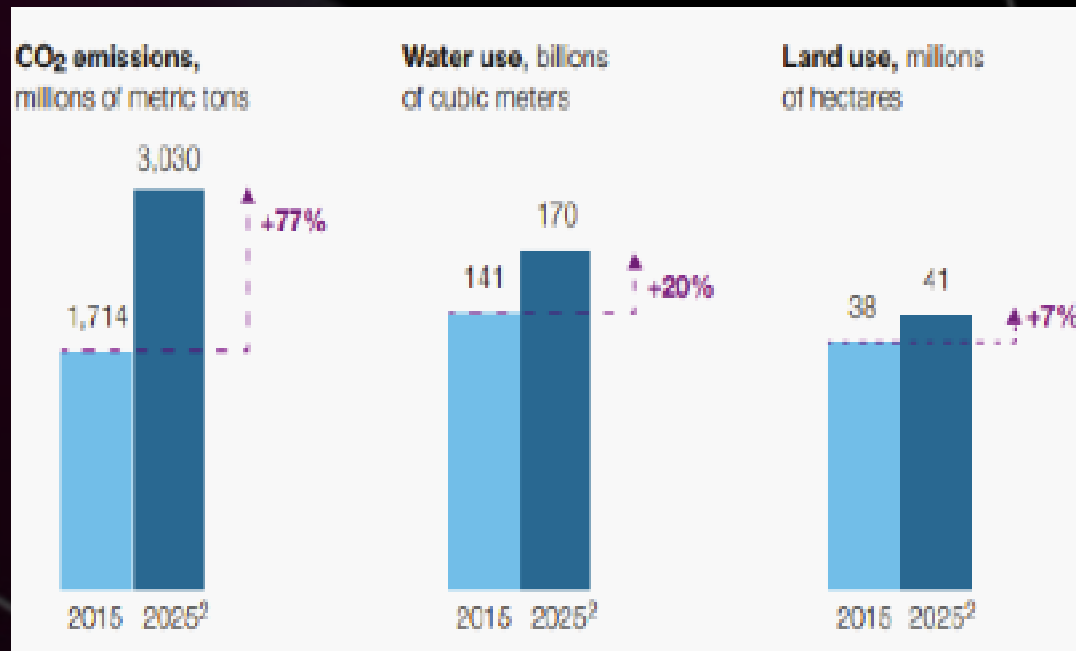


Problem
Approach

Environmental impact of the textile industry on emerging markets

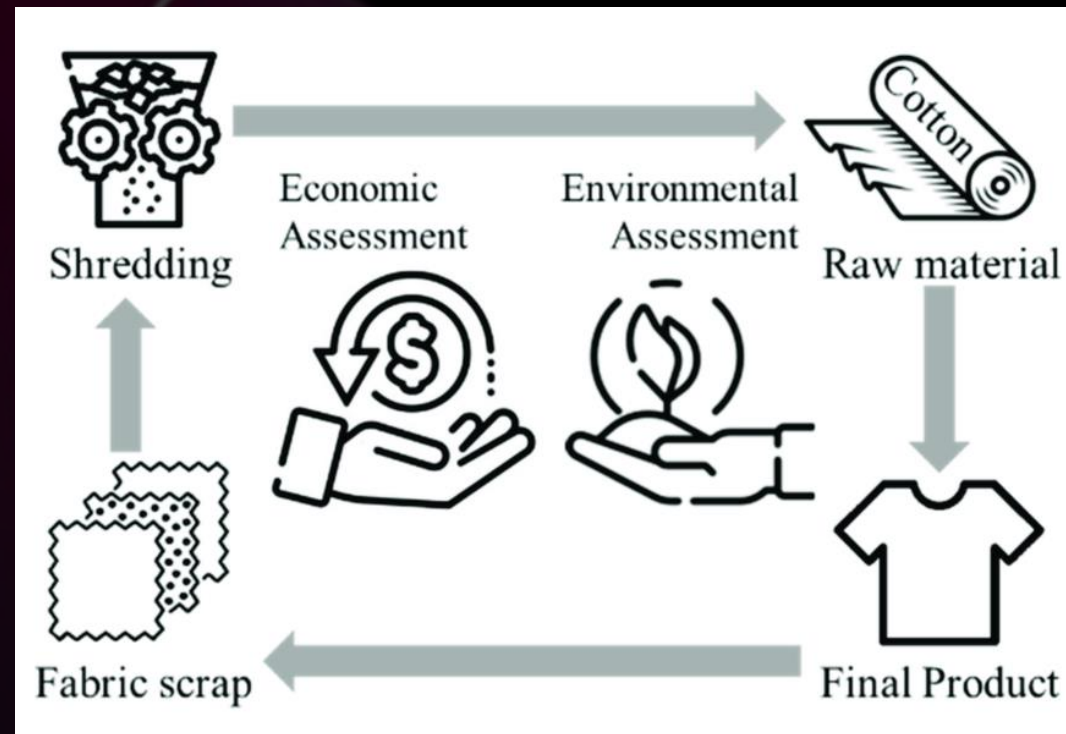


Fast
Fashion



Circular Economy

Products and materials are stored and maintained in closed-loop cycles.



As a result, associated waste, energy and emissions are minimized and phased out.

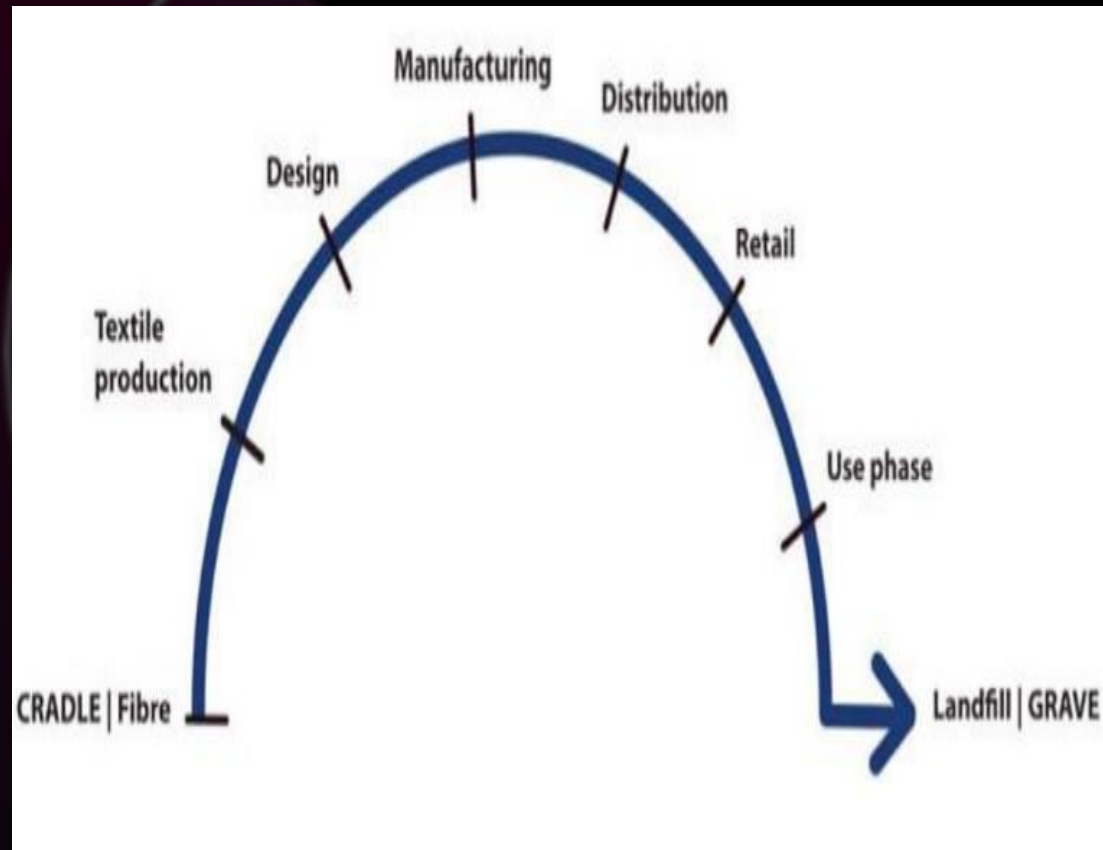


Problem
Approach

Inglés II
2023

Production Life Cycle

Traditional production life cycle



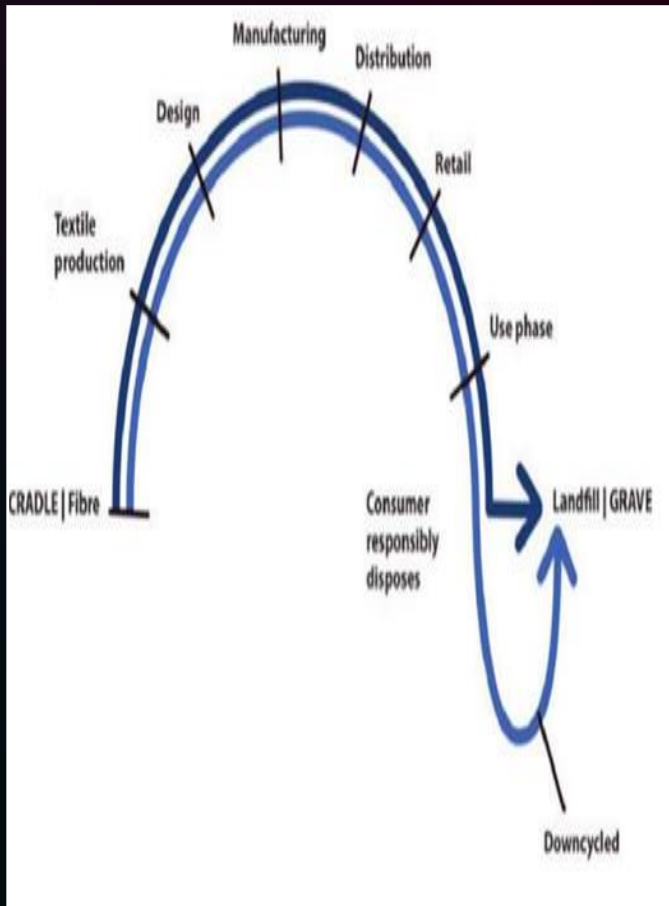
Problem
Approach

Production Life Cycle

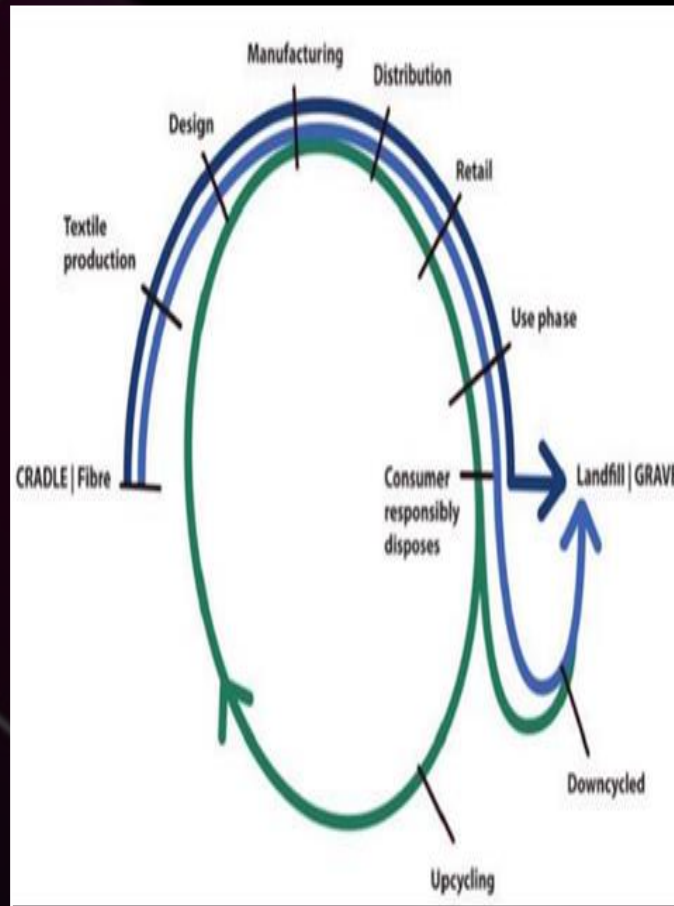


Problem Approach

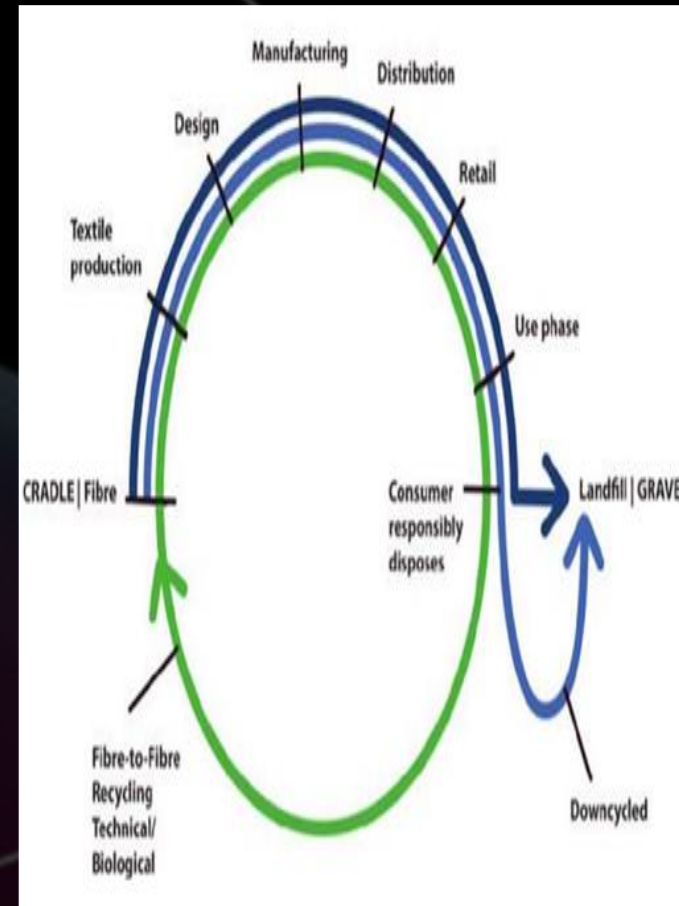
Downcycling



Upcycling



Cradle to Cradle



Analysis of the Research



Problem
Approach

Downcycling

- It obtains new products through simple methods.

HOWEVER:

- Its implementation is too limited.
- They do not generate large income for the industry.

Upcycling

- It increases the value of the garment.

HOWEVER:

- This method is time consuming.
- Selling new products is difficult.

Cradle to Cradle

- It encourages the development of new technologies.

HOWEVER:

- The new materials are more expensive.

Conclusion



Inglés II
2023

Conclusion

The current model is unsustainable.

It is necessary to implement and develop circular economy approaches to mitigate textile pollution.



References



- [1] A. Hasanbeigi, L. Price, "A technical review of emerging technologies for energy and water efficiency and pollution reduction in the textile industry", J. Cleaner Production, vol.95, pp. 30-44, 15 May 2015. Accessed: June 3rd, 2023 [Online]. Available: <https://www.sciencedirect.com/science/article/abs/pii/S095965261500205X>
- [2] United Nations, The 2030 Agenda and the Sustainable Development Goals: An opportunity for Latin America and the Caribbean (LC/G.2681-P/Rev.3), Santiago, 2018. Accessed: May 14th, 2023. [Online]. Available: https://repositorio.cepal.org/bitstream/handle/11362/40156/25/S1801140_en.pdf.
- [3] D. Bourguignon, "Closing the loop: New circular economy package", European Parliamentary Research Service. January 2016. Accessed: May 14th, 2023. [Online]. Available: https://www.europarl.europa.eu/RegData/etudes/BRIE/2016/573899/EPRS_BRI%282016%29573899_EN.pdf
- [4] "Fast fashion and its impacts", geneco.uk.com. <https://www.geneco.uk.com/news/fast-fashion-and-its-impacts#:~:text=Globally%2C%20the%20fashion%20industry%20is,modern%20car%20for%206%2C000%20miles>. (Accessed: June 24th, 2023).
- [5] S. Bouton, E. Hannon, M. Rogers, S. Swartz, R. Johnson, A. Gold, y M. Staples, "The circular economy: Moving from theory to practice," McKinsey Center for Business and Environment, Special edition, 2016. Accessed: August 5th, 2023 [Online]. Available: <https://www.mckinsey.com/~media/McKinsey/Business%20Functions/Sustainability/Our%20Insights/The%20circular%20economy%20Moving%20from%20theory%20to%20practice/The%20circular%20economy%20Moving%20from%20theory%20to%20practice.ashx>

References

- [6] J. Singha, K. Sungh, T. Cooper, K. West, O. Monta, “Challenges and opportunities for scaling up upcycling businesses – The case of textile and wood upcycling businesses in the UK,” *Resources, Conservation & Recycling*, vol.150, November 2019. Accessed: August 5th, 2023. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0921344919303349>
- [7] Springer-Verlag, “State of the art of post-consumer textile waste upcycling to reach the zero waste milestone,” *Environmental Science and Pollution Research*, vol.18, pp.14253-14270, January 2021. Accessed: 5th, 2023. [Online]. Available: <https://sci-hub.se/10.1007/s11356-021-12416-9>
- [8] A. Ortego, A. Valero, A. Valero, M. Iglesias, “Downcycling in automobile recycling process: A thermodynamic assessment,” *Resources, Conservation and Recycling*, vol.136, pp.24-32, September 2018. Accessed: August 5th, 2023. [Online]. Available: <https://www.sciencedirect.com/science/article/abs/pii/S092134491830137X>
- [9] T. Spathas, “The Environmental Performance of High Value Recycling for the Fashion Industry: LCA for four case studies,” Chalmers University of Technology, 2017. Accessed: August 5th. [Online]. Available: <https://odr.chalmers.se/server/api/core/bitstreams/92c83c0f-a0f5-4ae4-a0aa-4ed2f4ef8abf/content>
- [10] S. Herrmann, "A new textiles economy: Redesigning fashion's future", Ellen MacArthur Foundation, Page 126, 2017. Accessed: June 14th, 2023. [Online]. Available: <https://ellenmacarthurfoundation.org/a-new-textiles-economy>



THANK YOU
FOR YOUR
ATTENTION



If we don't help the environment, who will?

Inglés II
2023

Textile Pollution Reduction: Circular Economy in the Textile Industry

Members of group:

- Paolo Maldonado
- Martin Paniagua



**Universidad Tecnológica Nacional, Facultad Regional Paraná
Electromechanical Engineering Department**



Inglés II
2023