

Framework for Sustainability: An Analysis of Urban Waste Management in Portugal

INTRODUCTION

Urban waste represents a pressing environmental and public health challenge of contemporary societies. To meet European targets, recycling rates need to be more than doubled by 2035 [1] and not every country is on equal footing, with variable performance in the implementation of these policies. Additionally, the New Waste Framework Directive binds Member States to gradually introduce economic instruments, like PAYT (Pay-as-you-Throw) tariff systems and separate bio-waste collection. This will necessarily lead to major technical and economic changes.

However, **waste management needs to change, not just technically, but also at an institutional level** [2].

This work addresses critical gaps in existing research by **examining institutional complexity, adaptive capacity, and the conditions or transformative change** in urban waste management, taking Portugal as a case study. For more than two decades Portugal has been carrying out the separate collection of paper/cardboard, glass and plastic/metal. In 2020, the transposition of the new waste framework directive (Decree-Law n.º 102-D/2020) introduced the need to collect a new waste flux: **biowaste**. Changes started to take effect, but there's still a long way to go.

The aim is to identify stakeholders and institutions relevant to biowaste management and describe the interactions between them, that is, to create a visualization of the biowaste governance model.

THEORETICAL FRAMEWORK

The theoretical framework is based on three strands: (i) institutional theory, which defines institutions as 'systems of established and persistent social rules that structure social interaction' [3]; (ii) political ecology and political economy; and (iii) socio-technical systems and transition analysis.

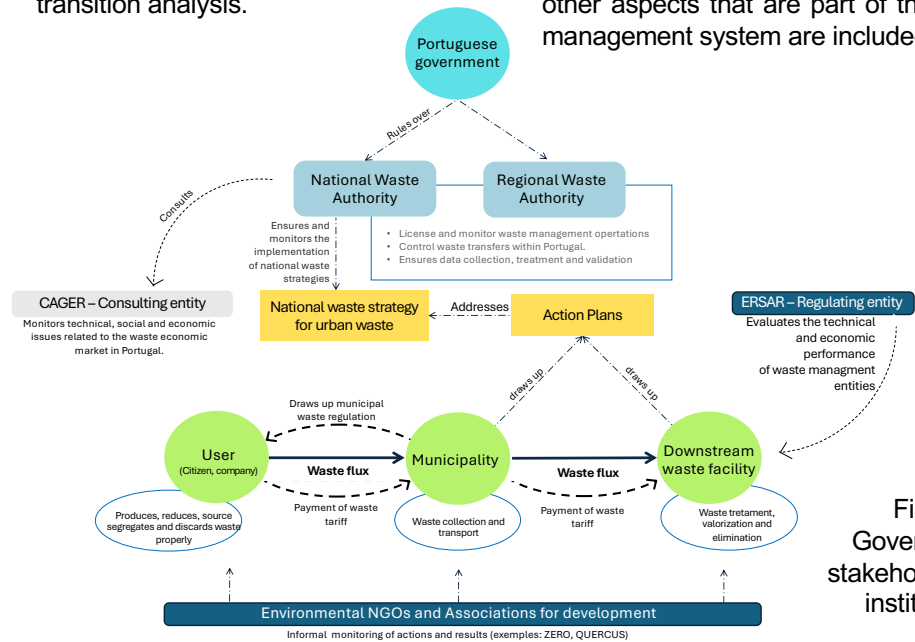


Fig. 1
Governance,
stakeholders and
institutions

This theoretical framework offers a comprehensive set of analytical tools required for the current analysis.

RESULTS

The techno-social system of biowaste management in Portugal is represented (fig 1). The governance and institutional scale was organized into:

- Micro – citizens
- Meso – municipalities, upstream waste entities
- Macro – government, regulatory agency
- Regional - EU
- Global – UN (with the SDGs).

FINAL REMARKS

This work goes beyond the technical and economic dimensions of waste management to embrace institutional analysis and process dynamics. The results represent a **coherent and integrated system**, in which social norms, culture, incentives, among many other aspects that are part of the waste management system are included.

At each level, **transitions, stakeholders, institutions and governance** are scrutinized. The capacity of institutions to effectively govern waste streams is critical in determining the environmental and social outcomes.

REFERENCES

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