

Textile sludge valorization: a challenge toward a more sustainable system

Francesca Tuci^a, Valentina Buscio^b, Víctor López-Grimau^b, Xavier Guimerà Villalba^c

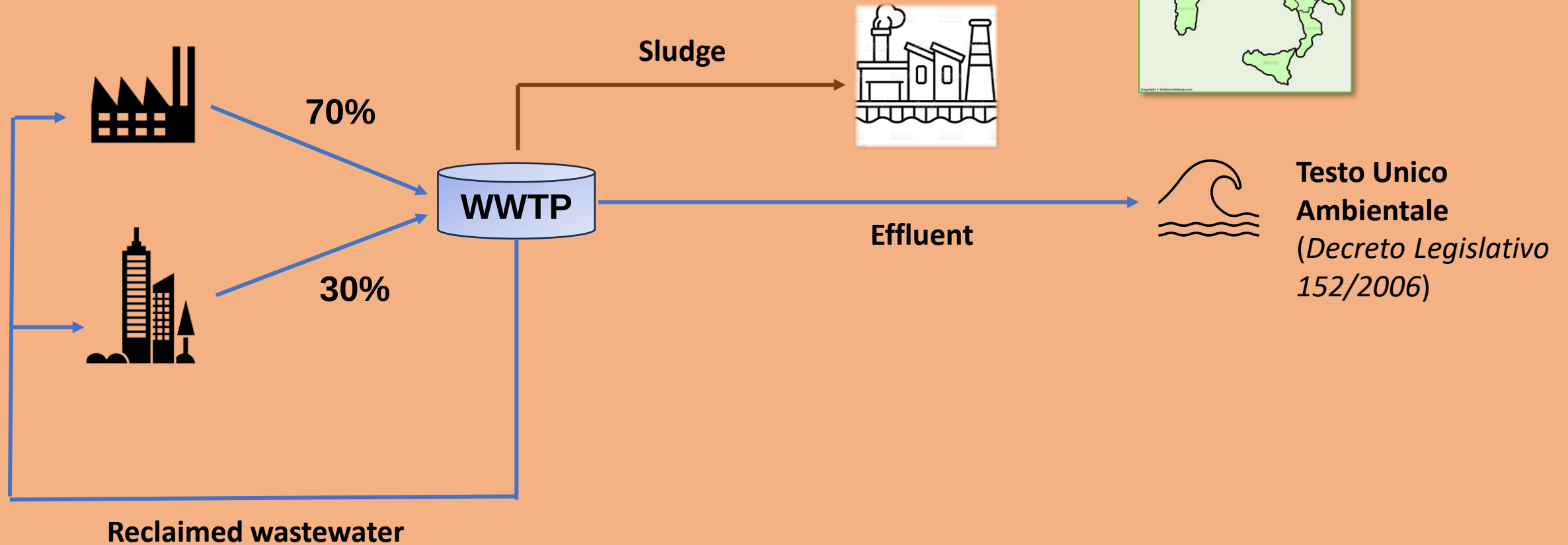
^a Department of Civil and Environmental Engineering, University of Florence

^b Institute of Textile Research (INTEXTER), Universitat Politècnica de Catalunya

^c Manresa School of Engineering (EPSEM), Universitat Politècnica de Catalunya

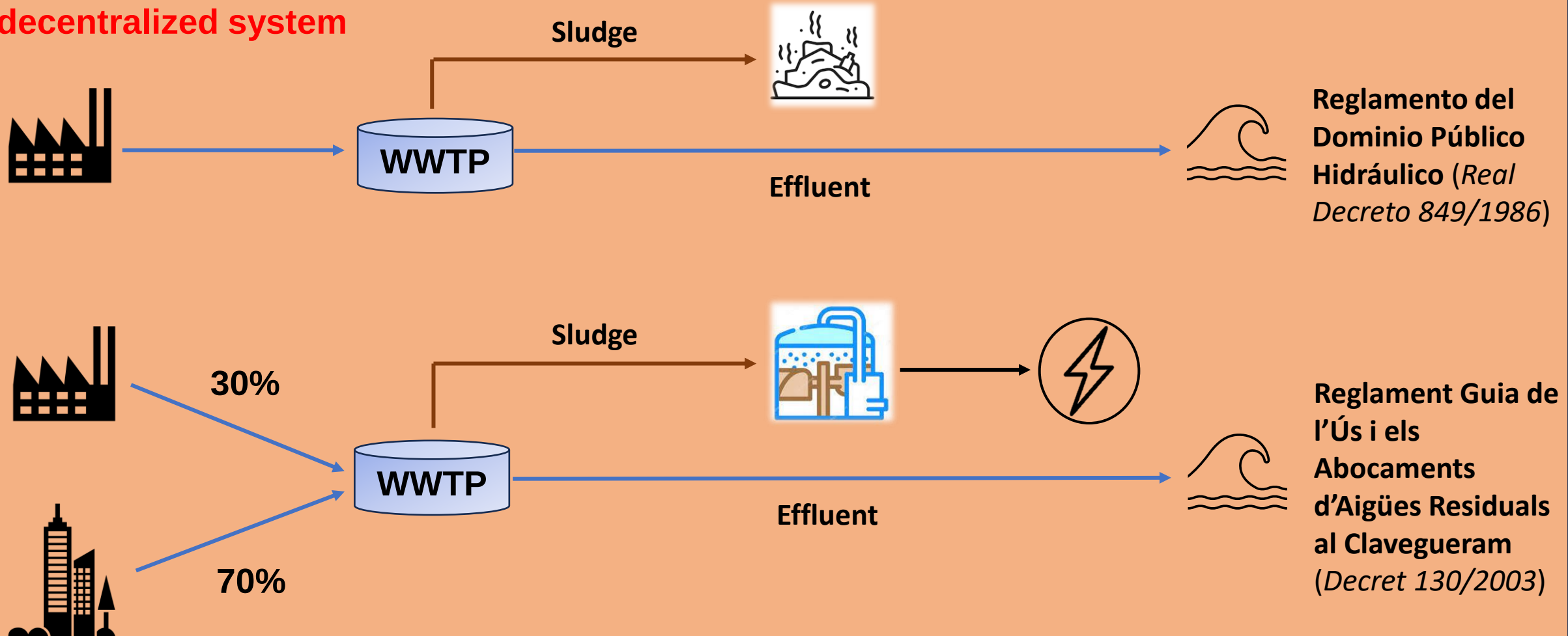
Introduction

Prato TXT district →
centralized system



Introduction

Terrassa TXT district →
decentralized system



Objectives

- Study the **anaerobic digestion** of **TXT sludge**;
- Evaluate the **effects** of mixing **urban wastewater** and **TXT wastewater** on the **anaerobic digestion** process.



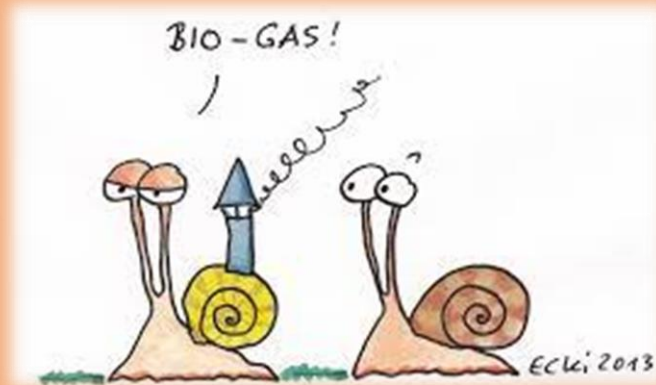
Material & Methods

1) **BMP tests** applied to:

- **Urban sludge**
- **TXT sludge**
- **Mixed sludge (Prato sludge)**

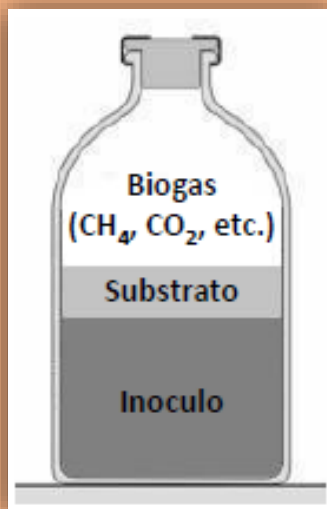
2) **Different I/S ratios** applied to **TXT sludge**

3) **Same I/S ratio** to compare **different sludges**



Material & Methods

Sludge type	TS [%]	VS [%]	C/N
Prato sludge dried	7.4%	17%	12.53
100% TXT sludge 1 dried	4.8%	6.6%	6.94
100% TXT sludge 2 dried	2.0%	13.4%	-
100% TXT sludge 2 fresh	-	-	-
Urban sludge dried	0.28%	0.4%	-



- Volume: 80 ml
- Temperature: 35°C
- Time: 32 days
- Tests performed in quadruplicate

Expected Results



Urban Sludge



Mixed Sludge



Textile Sludge

Anaerobic digestion of Mixed sludge vs. TXT sludge:

- Higher production of biogas
- Better quality of biogas

BUT



Biogas quality and quantity from TXT sludge are enough to consider valorization instead of disposal!



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Thank you for your attention!

francesca.tuci@unifi.it
francesca.tuci@upc.edu

