



**Sustainable Water
Integrated Management (SWIM) -
Support Mechanism**



Project funded by
the European Union

Water is too precious to waste

TWO DAYS TRAINING ON THE OPERATION AND MANAGEMENT OF WWTPS

9-10 September, Murcia

General Economic Aspects of Wastewater Treatment and Reuse

Presented by: Pedro Simon Andreu

General and economic aspects



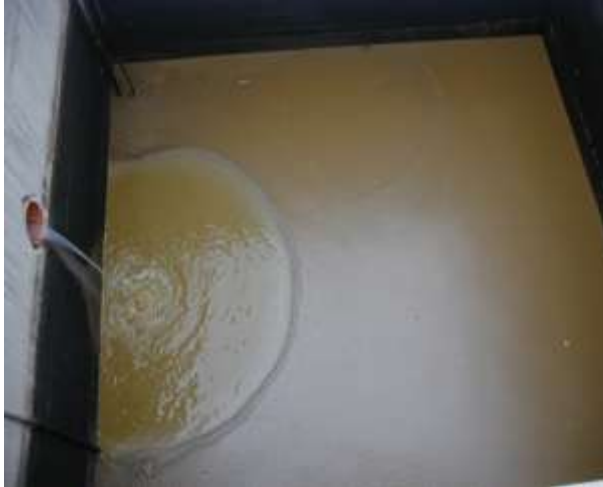
General and economic aspects



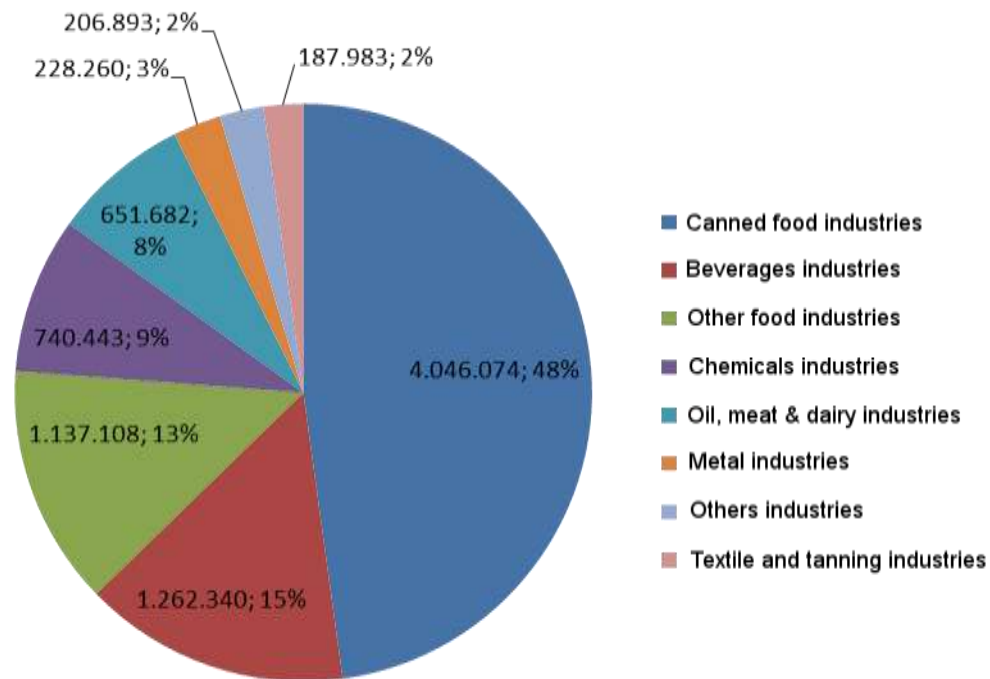
General and economic aspects



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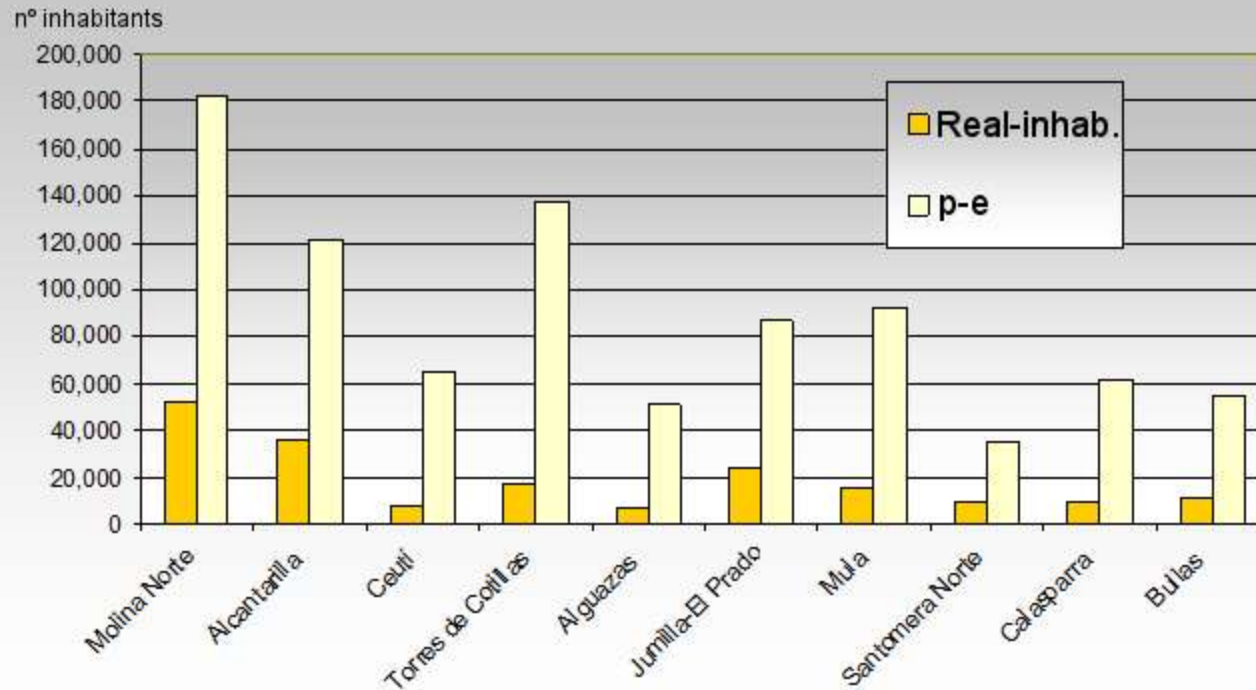


General and economic aspects



General and economic aspects

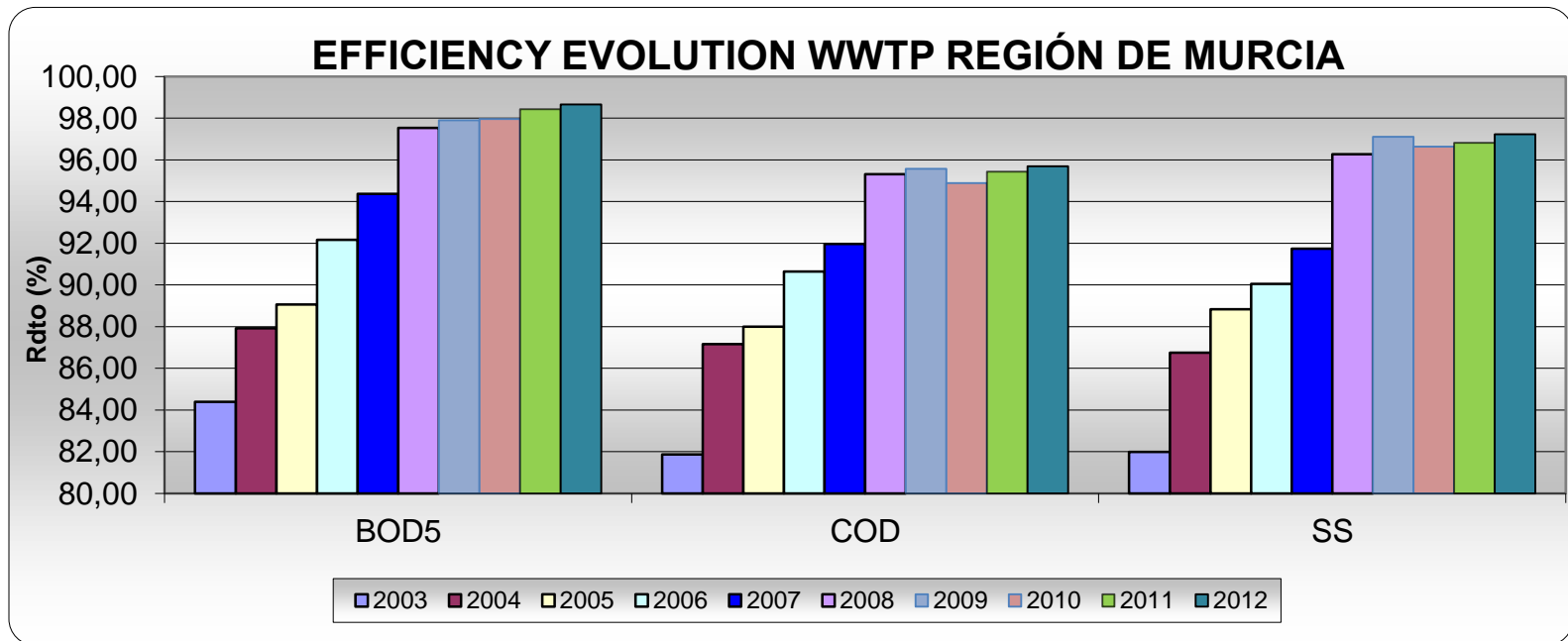
COMPARATIVE CHART Real Population us. Equivalent Population



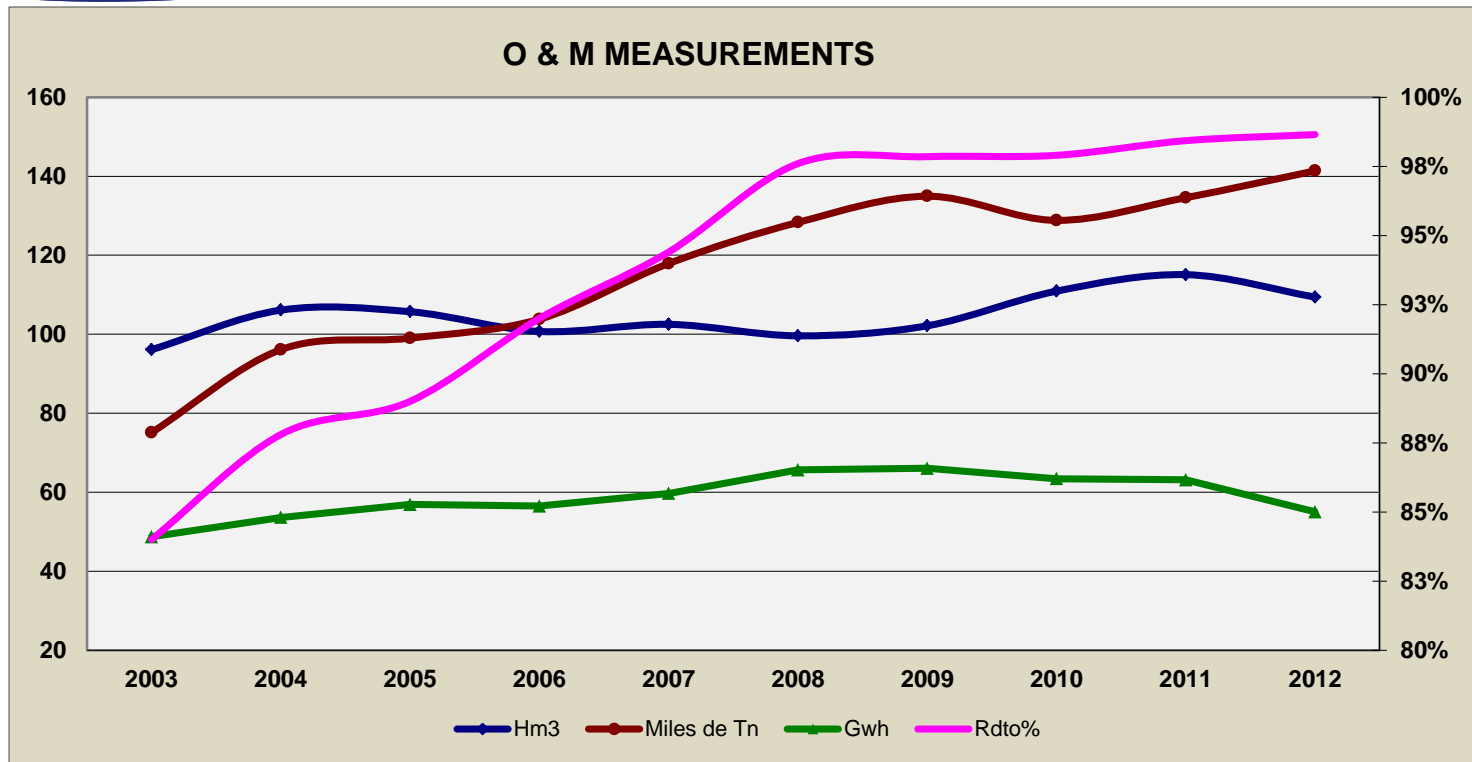
General and economic aspects



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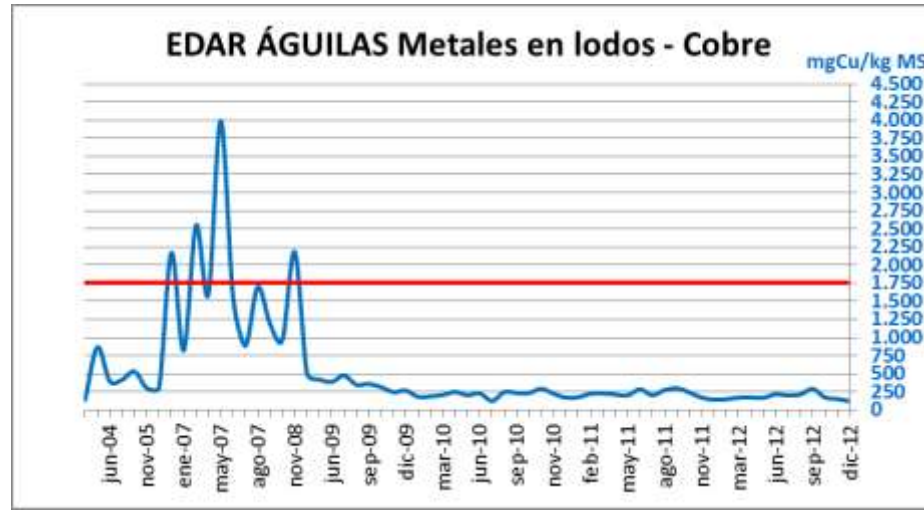
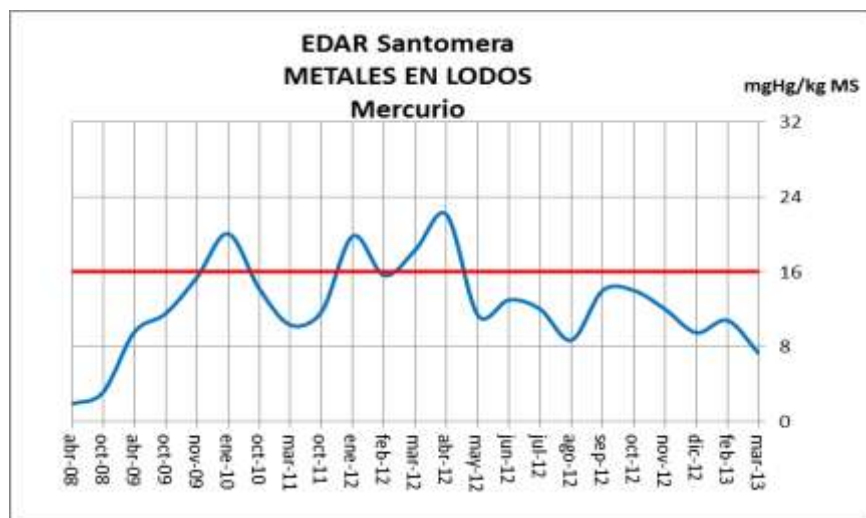
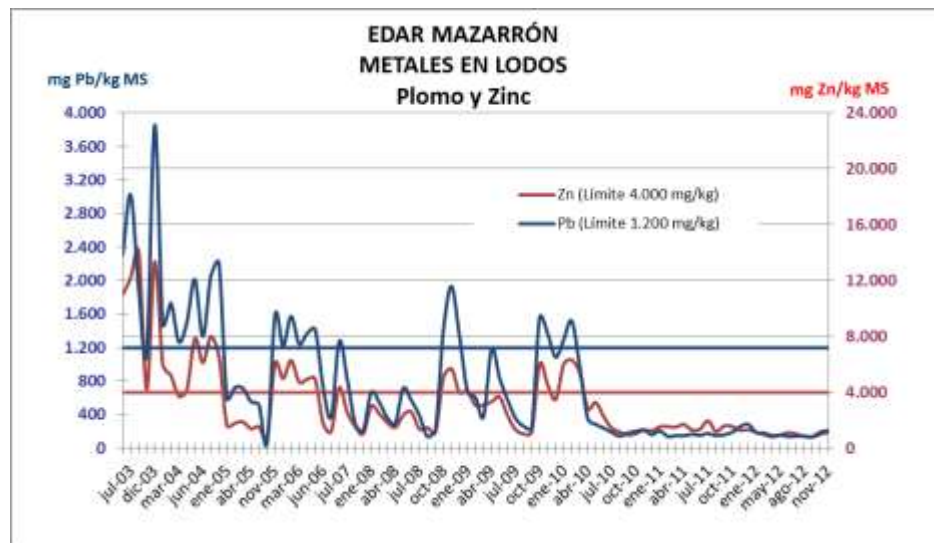
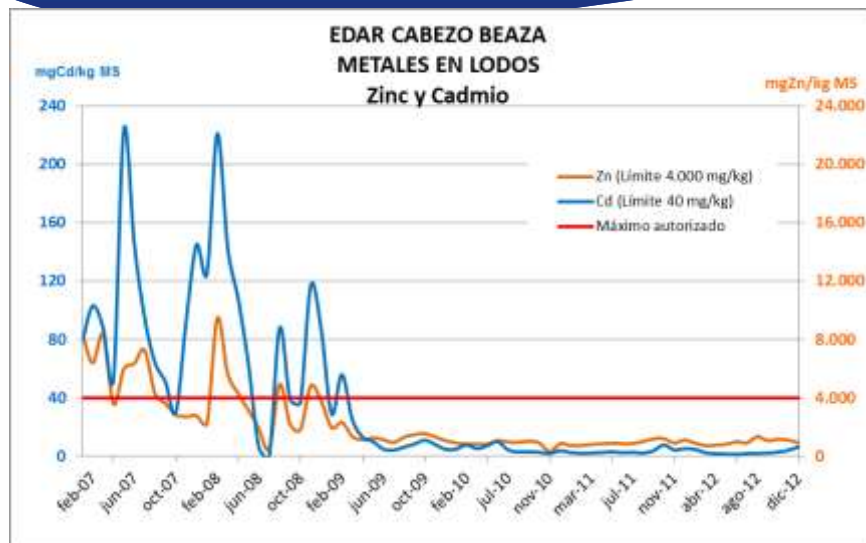


- Treated water
- Sludge
- Electric energy
- Efficiency

General and economic aspects

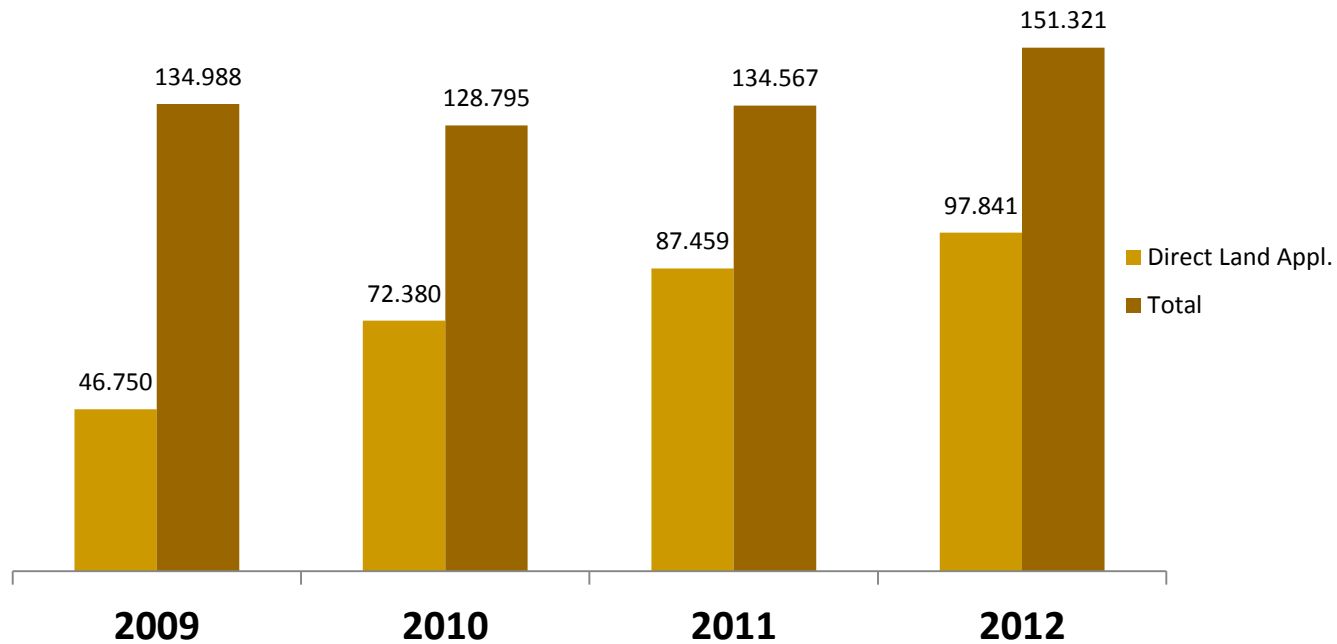


General and economic aspects



General and economic aspects

Total production and direct land application of WWTP



General and economic aspects

Influent Analytical Values In Murcia Region WWTP

<i>Parameter</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Medium</i>	<i>Weighted average</i>
BOD5 (mg/l)	94	2.063	499	420
COD (mg/l)	179	4.242	928	766
SS (mg/l)	71	1.883	377	312
Conductivity (μS/cm)	981	8.988	2.204	2.794

General and economic aspects



RELIABILITY

General and economic aspects



Critical breakdown



Duplicity of equipments

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Single reactor

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Emergency generators

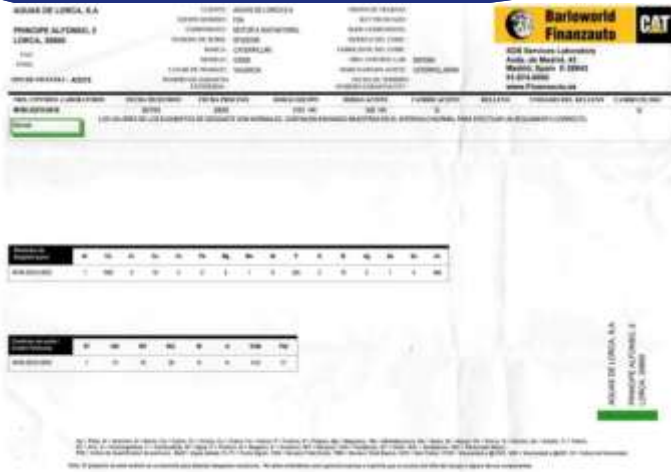
18/09/2008

General and economic aspects



Warning system alarms to mobile

General and economic aspects



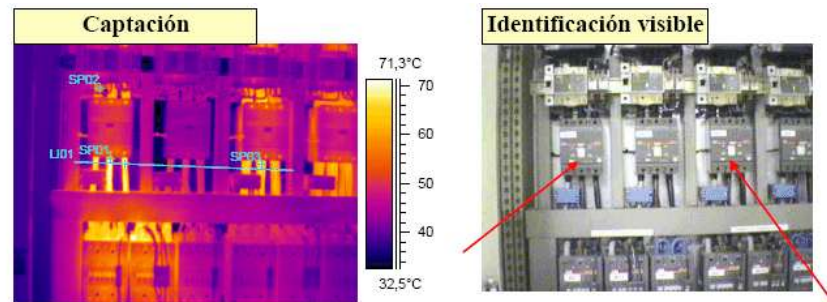
Oil analysis



Vibration analysis



Thermography



Predictive maintenance

General and economic aspects

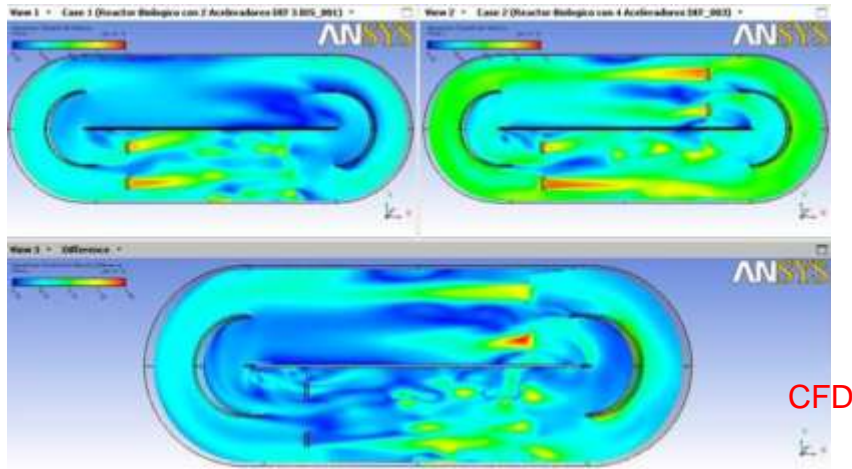


Stock of replacement parts



Aspect of facilities

General and economic aspects



CFD



Microwave dryer



Electrocoagulation



Solar photocatalysis



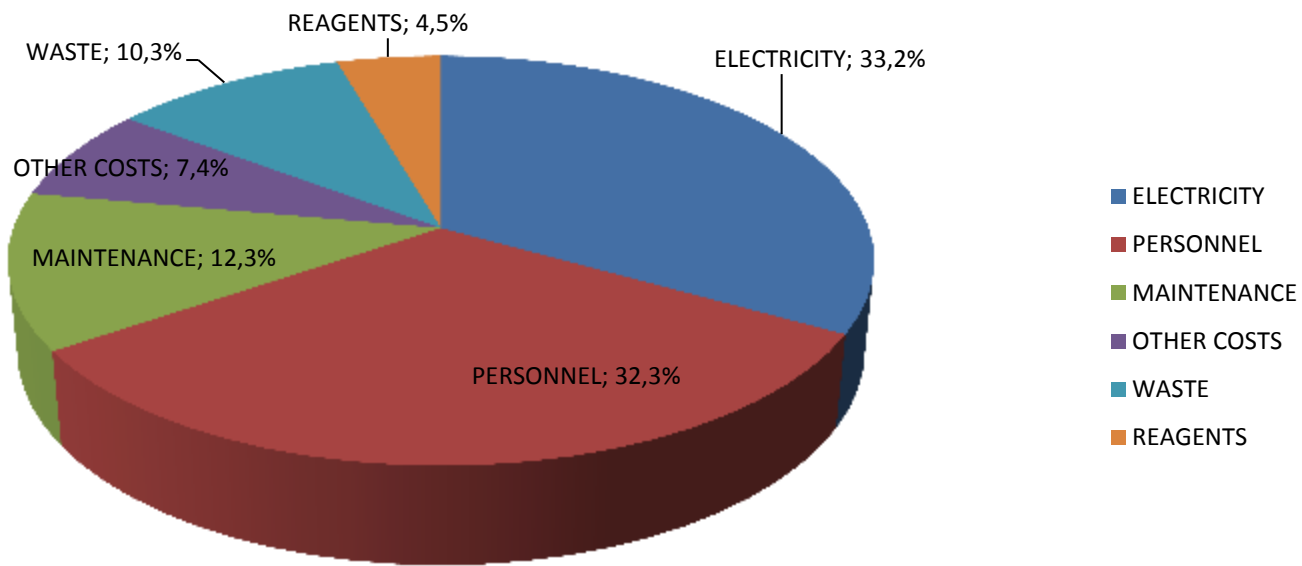
Codigestion assays

Research

General and economic aspects

WWTP Flowrate range (m ³ /day)	O & M (€/m ³)		
	Medium	Maximum	Minimum
$X \geq 25.000$	0,18	0,21	0,16
$8.000 \leq X < 25.000$	0,32	0,41	0,27
$1.500 \leq X < 8.000$	0,39	0,85	0,23
$1.500 > X$	0,76	5,81	0,41

General and economic aspects



Average Costs Distribution in WWTP

مع خالص شكري
وامتناني

Thank you
for your attention

Merci pour
votre attention



For additional information please contact:

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