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Alberto Confalonieri | CIC

Evolving bio-waste treatment in Italy

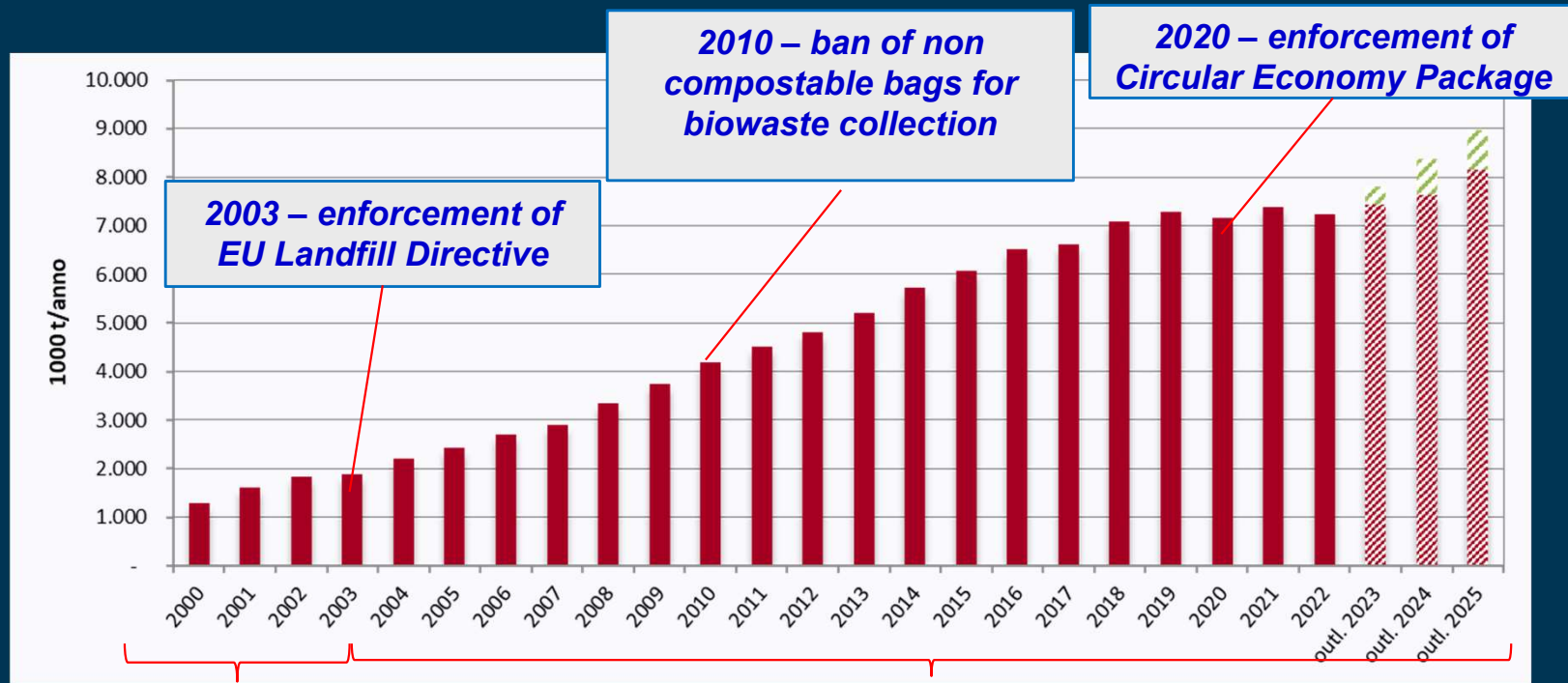
**A journey of regulatory, political, and technological
advancement**

Regulatory and technical perspectives – driving progress in bio-waste treatment



Separate collection of biowaste: the drivers

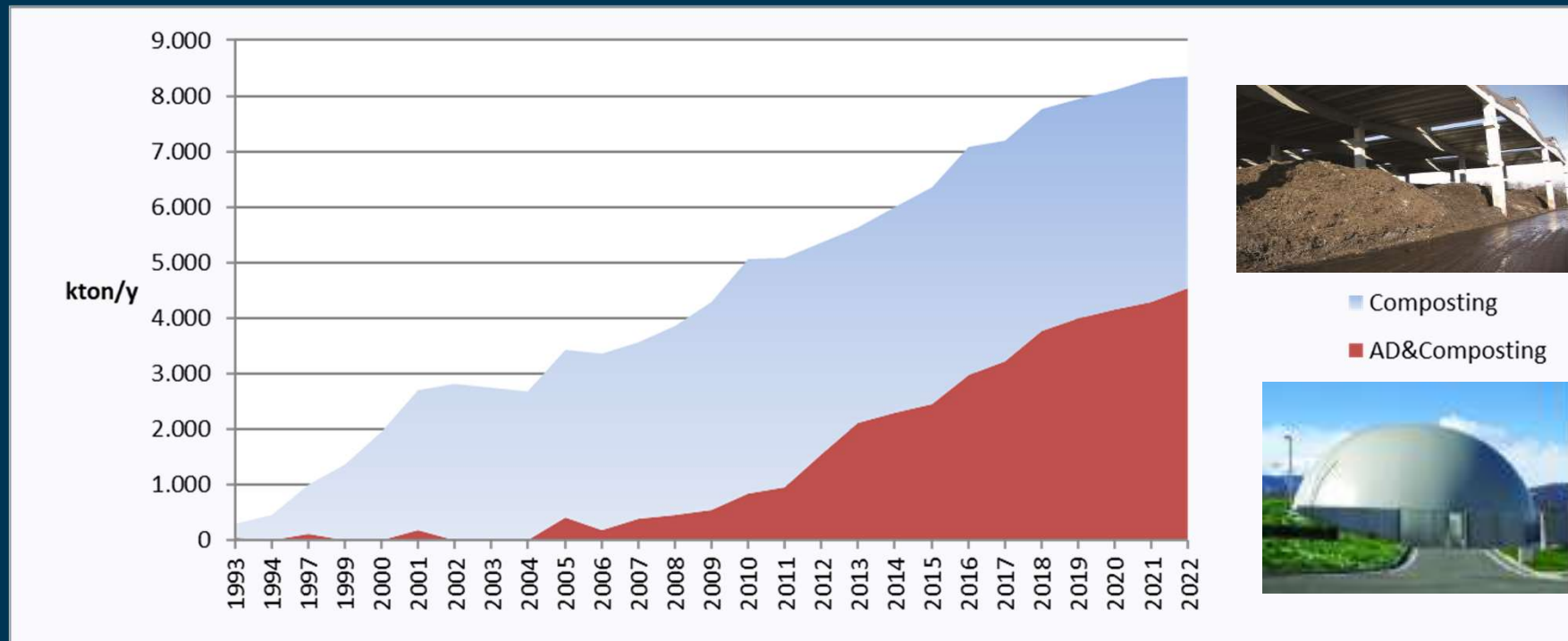
1997 - First MSW separate collection targets



1999-2003
First national and regionale rules on compost and bio-waste recycling

2003 -
Incentives to renewable energies

Biowaste recycling in 2022



Composting

AD&Composting



AD implementation and development timeline

- **Early 2000s** Green certificates
- **2008 -2012** All-inclusive tariff (2008-2012, 0.28€/kWh for 15 years)
- **2012 -** Reduction of Incentives to e.e. (D.M. 2012, 2016; 0.14-0.18€/kWh for 20y)
- **2013-2018** 1st Biomethane Decree, ineffective
- **2018-2023** 2nd Biomethane Decree (March 2018), specifically meant to subsidize biomethane as a fuel for vehicles
- **2022-2026** 3rd Biomethane Decree, subsidizing biomethane disregarding its final use vehicles



Biowaste recycling in 2022



Composting: technological diversity

Environmental
protection demand

Heaps/Piles

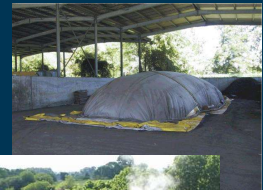
Aerated static pile

Turned windrows

In vessel systems

(biocells/biocontainers)

Static/dynamic basins



Composting: technological diversity

Throughput capacity

Heaps/Piles

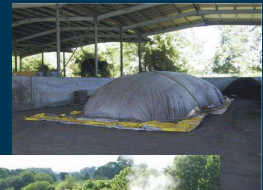
Aerated static pile

Turned windrows

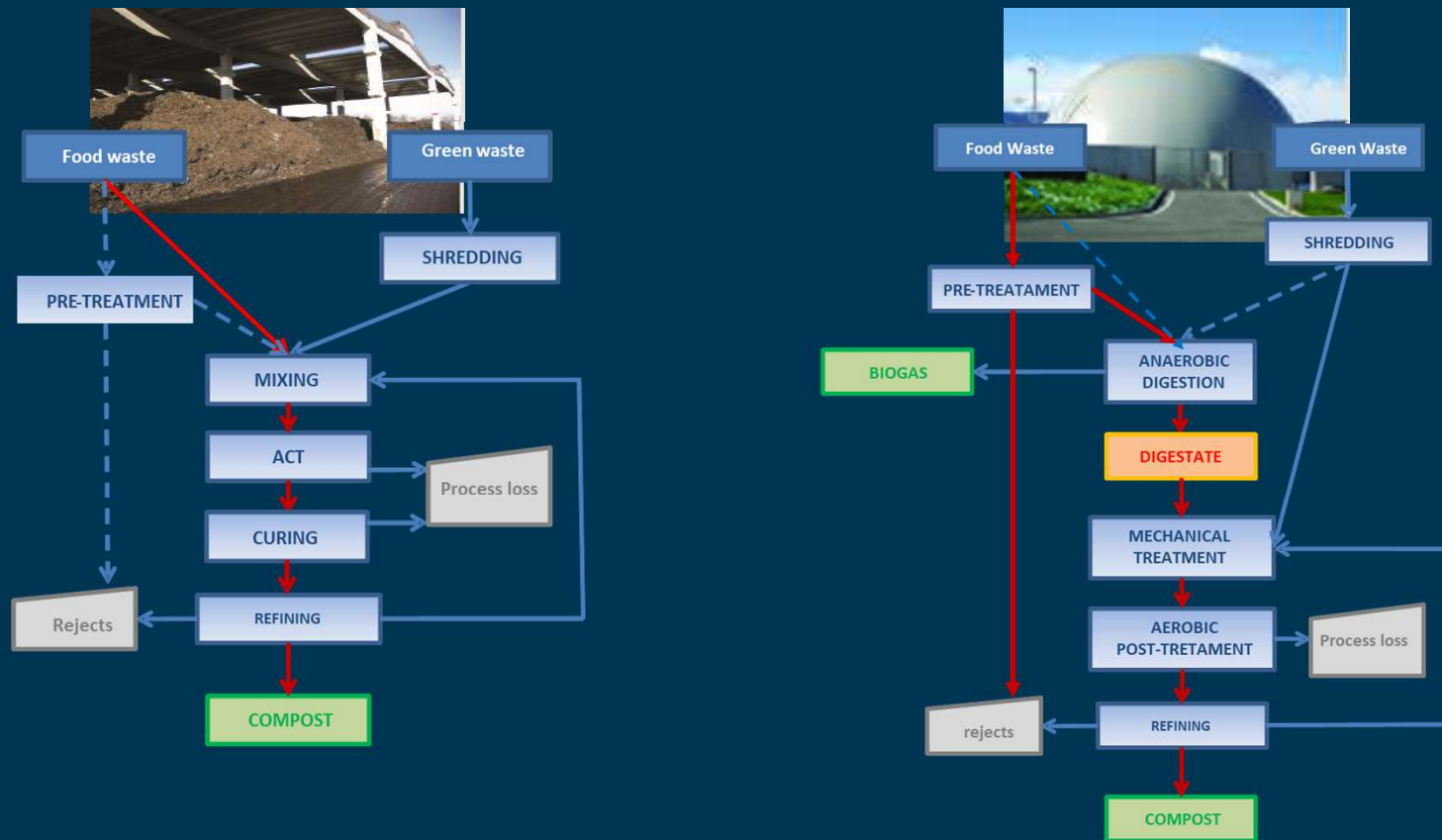
In vessel systems

(biocells/biocontainers)

Static/dynamic basins



Composting vs AD: typical layouts in Italy



Material recycling is the keyword: compost and its applications

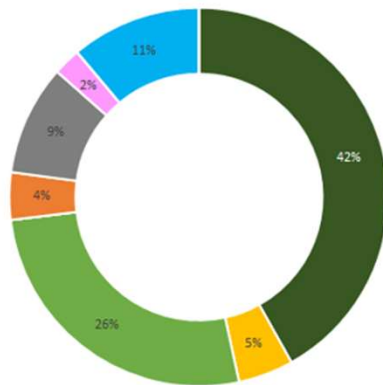
1.900.000_{ty} COMPOST

(GREEN COMPOST, BIOWASTE COMPOST, SLUDGE COMPOST)

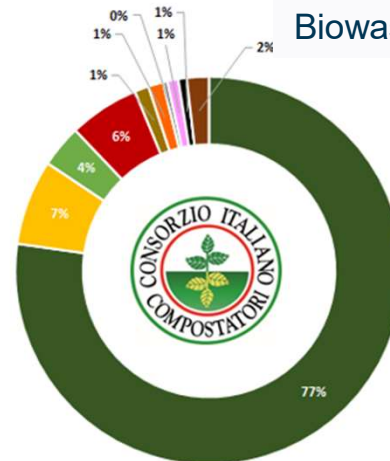


Recycling is the keyword: compost and its applications

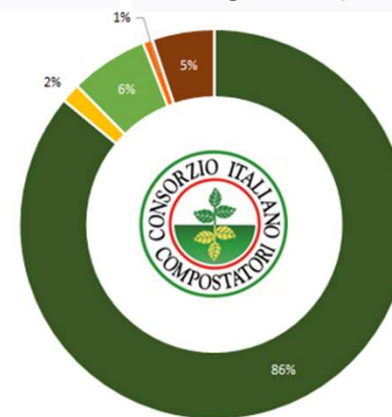
Green compost



Biowaste compost



Sludge compost



- Professional agriculture (open field)
- Amateur agriculture (gardens, small fields...)
- Fruit growing
- Production of organo-mineral fertilizers
- Top dressing
- Horticulture
- Livestock
- Household uses
- Gardening and flower growing
- Landscaping

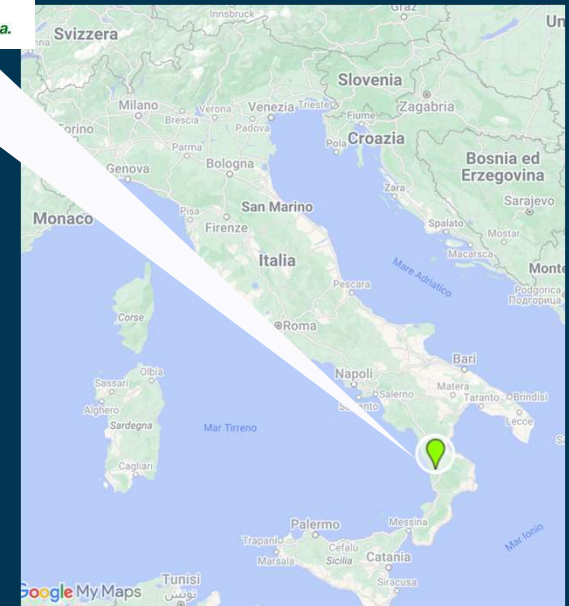


Recap through an example: Calabria Macery e Servizi Srl

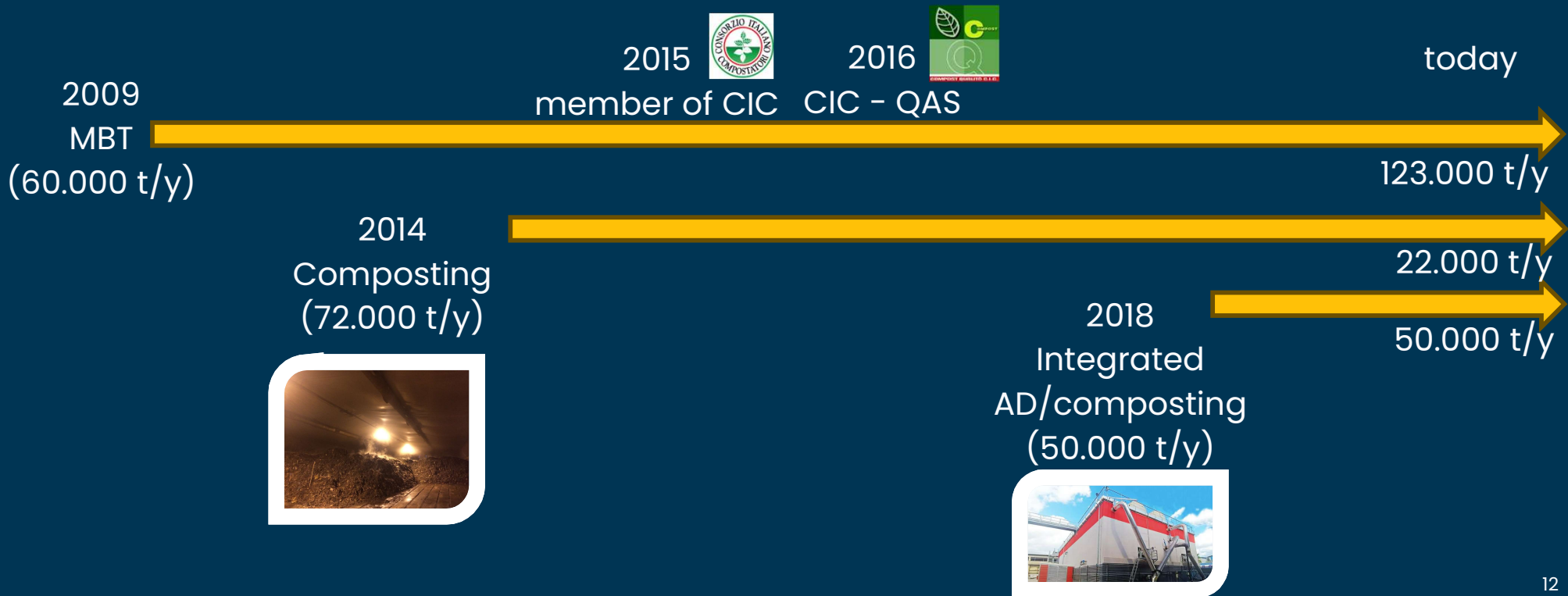


Calabria Maceri is a private company that manages several waste flows:

- Paper, cardboard and mixed packaging sorting: 26.000 t/y
- Comingled separate collection sorting: 26.000 t/y
- MBT: 123.000 t/y
- C&D treatment: 24.000 t/y
- RDFproduction plant: 24.000 t/y
- **Biowaste recycling plant: 72.000 t/y**



From residual waste stabilization up to integrated biowaste management



A company committed to compost



- Local, regional and national market
- Selling of bulk and packed products
- pellettising unit
- compost application service
- research activities in cooperation with local universities and farmers
- cooperation with the regional agency for agriculture

Conclusions and outlook

- 90% of the Italian population involved in bio-waste separate collection
- Future increase of integrated AD+composting facilities
- Room for improvement of bio-waste quality (above all foodwaste); a key aspect for increasing recycling rate
- Compost production still the main end point of the recycling process

Thank you!

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