

Biowaste Management in Europe

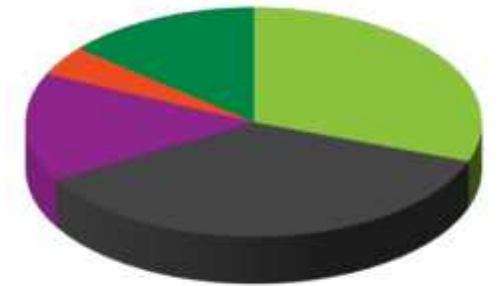
European Compost Network ECN e.V.



European Compost Network

Status of ECN Membership

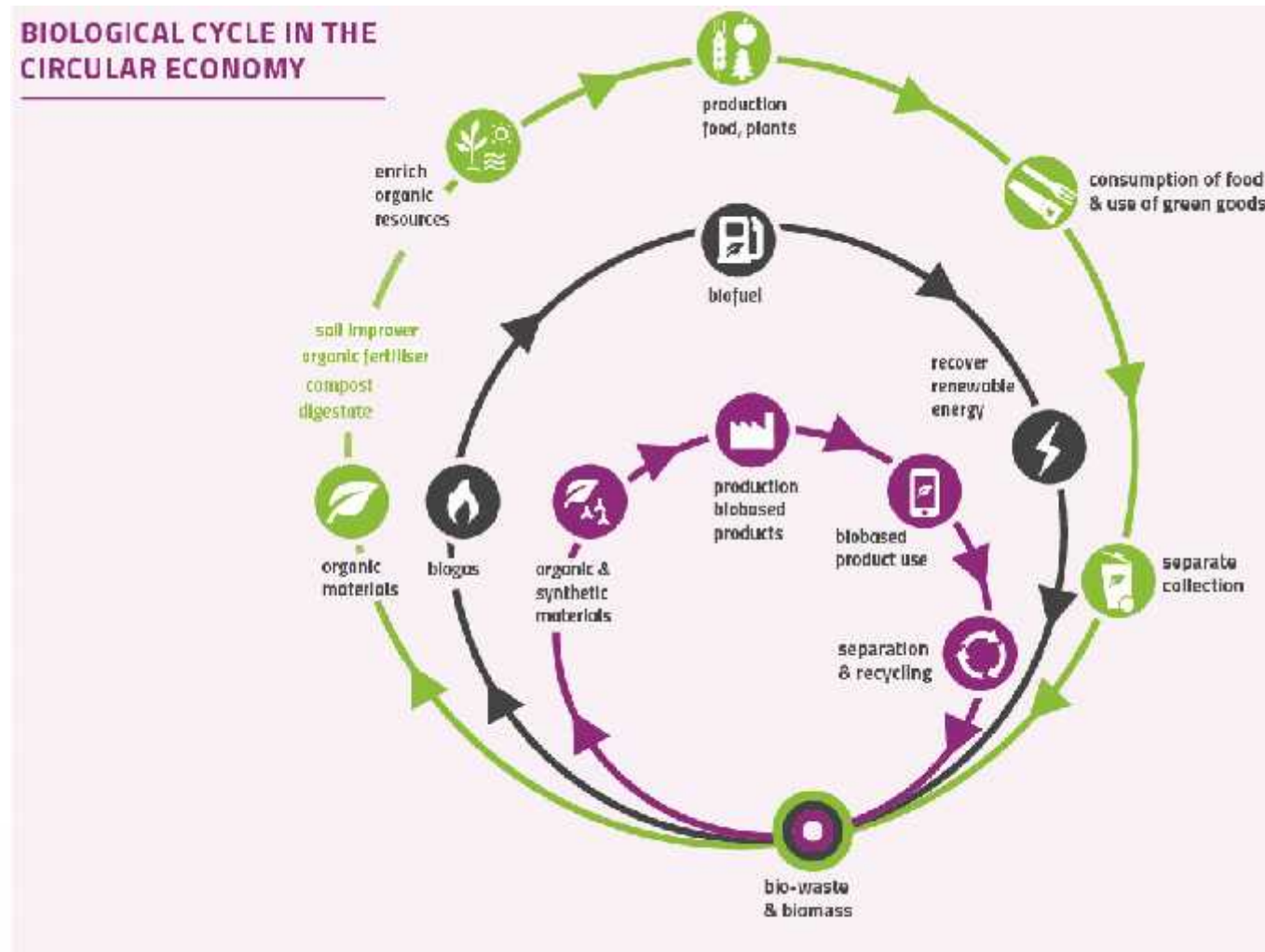
- 72 Members from 27 European Countries
- ECN represents more than 3.000 treatment plants (composting and anaerobic digestion) with more than 30 M tpa treatment capacities
- Compost production of 12-15 M tpa, used as
 - Organic Fertiliser
 - Soil Improver
 - Mixing component in Growing Media



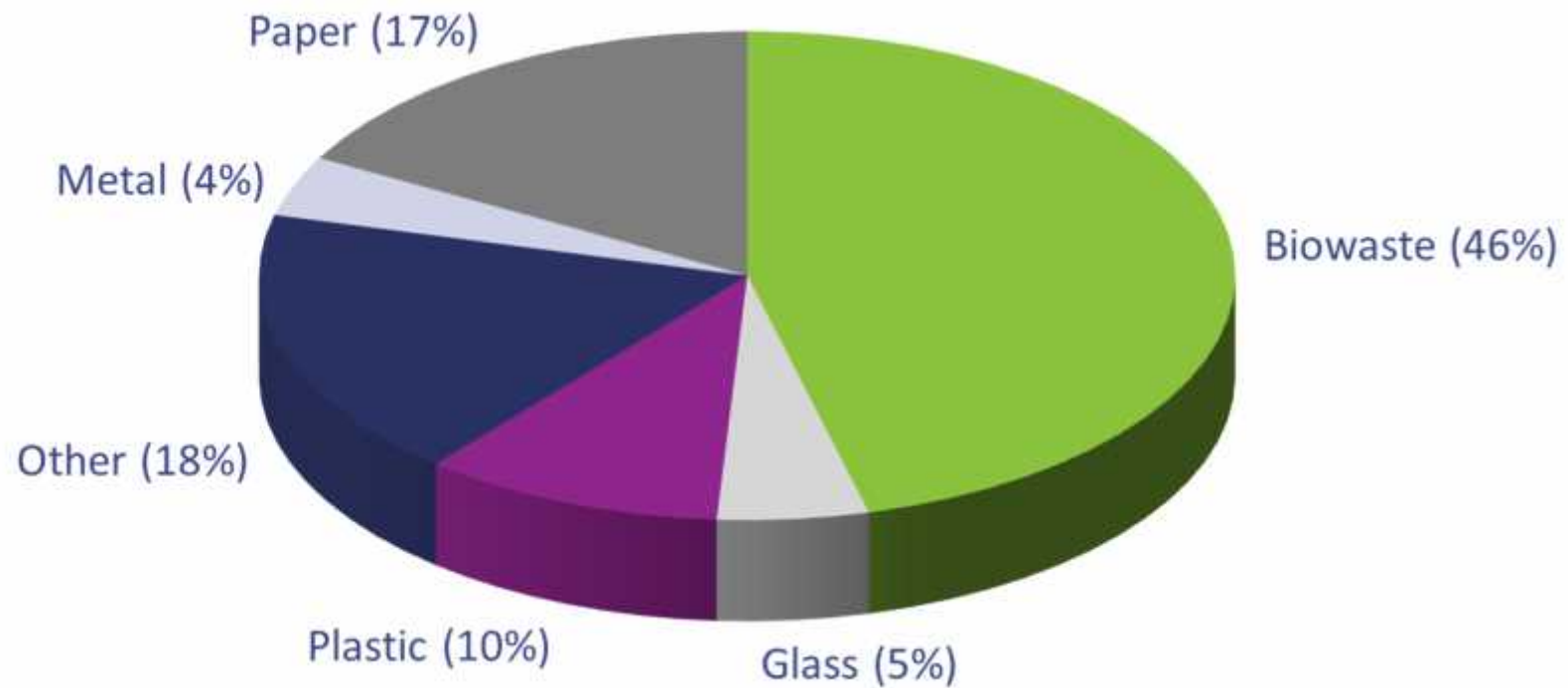
- Biowaste Organisations (22)
- Companies (26)
- Academic Institutes (11)
- Governments (3)
- Non-profit Environmental Organisations (10)



Organic waste in the Circular Economy



Composition of Municipal Solid Waste



Source: World Bank/Hoornweg and Bhada-Tata, 2012

Potential of Biowaste in Europe

Biowaste in Municipal Solid Waste (MSW):

- 20-60 % biowaste in MSW
- Potential of biowaste from MSW in Europe: 90 Mt pa
- Recycling of biowaste in Europe: 30 Mt pa
- ❖ **60 Mt pa of biowaste from MSW is wasted**
- Food waste (EU 27, 2006)
- 89 Mt total food waste per year
- 38 Mt food waste from households
- ❖ **51,7 Mt pa of commercial and industrial biowaste**



Biowaste management

Input for composting and anaerobic digestion plants

- Organic fraction (green and food waste)
- Garden wastes
- Crop residues
- Manures
- Commercial & industrial (e.g. food and green waste)

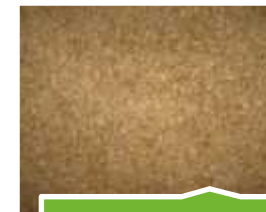
MSW



Food waste



Garden waste



Crop residues

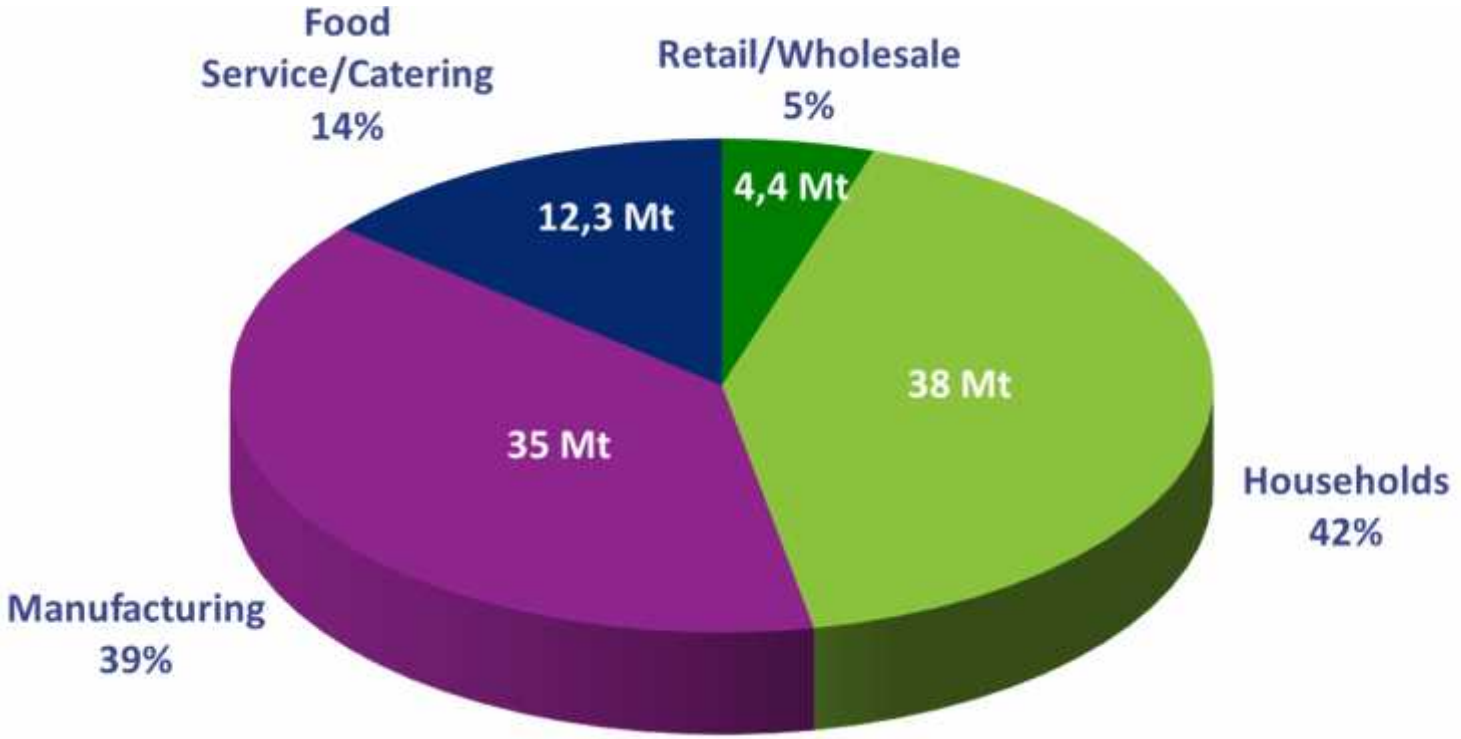


Manures

Source: ISWA 2015

Food Waste Composition in EU 27 (EUROSTAT 2006)

89 Mt total food waste per year



Source: EU 2010 – Final Report – Preparatory Study on Food waste, figures based on EUROSTAT data 2006



Status on Separate Collection of Biowaste in Europe

Sweden:

67 sites, 1.07 million tons of biowaste

Finland:

259 sites, 0.48 million tons of biowaste

United Kingdom:

199 sites, 2.95 million tons of biowaste

Netherlands:

135 sites, 4.20 million tons of biowaste

Belgium:

81 sites, 2.03 million tons of biowaste

Germany:

912 sites, 8.87 million tons of biowaste

France:

692 sites, 4.62 million tons of biowaste

Spain:

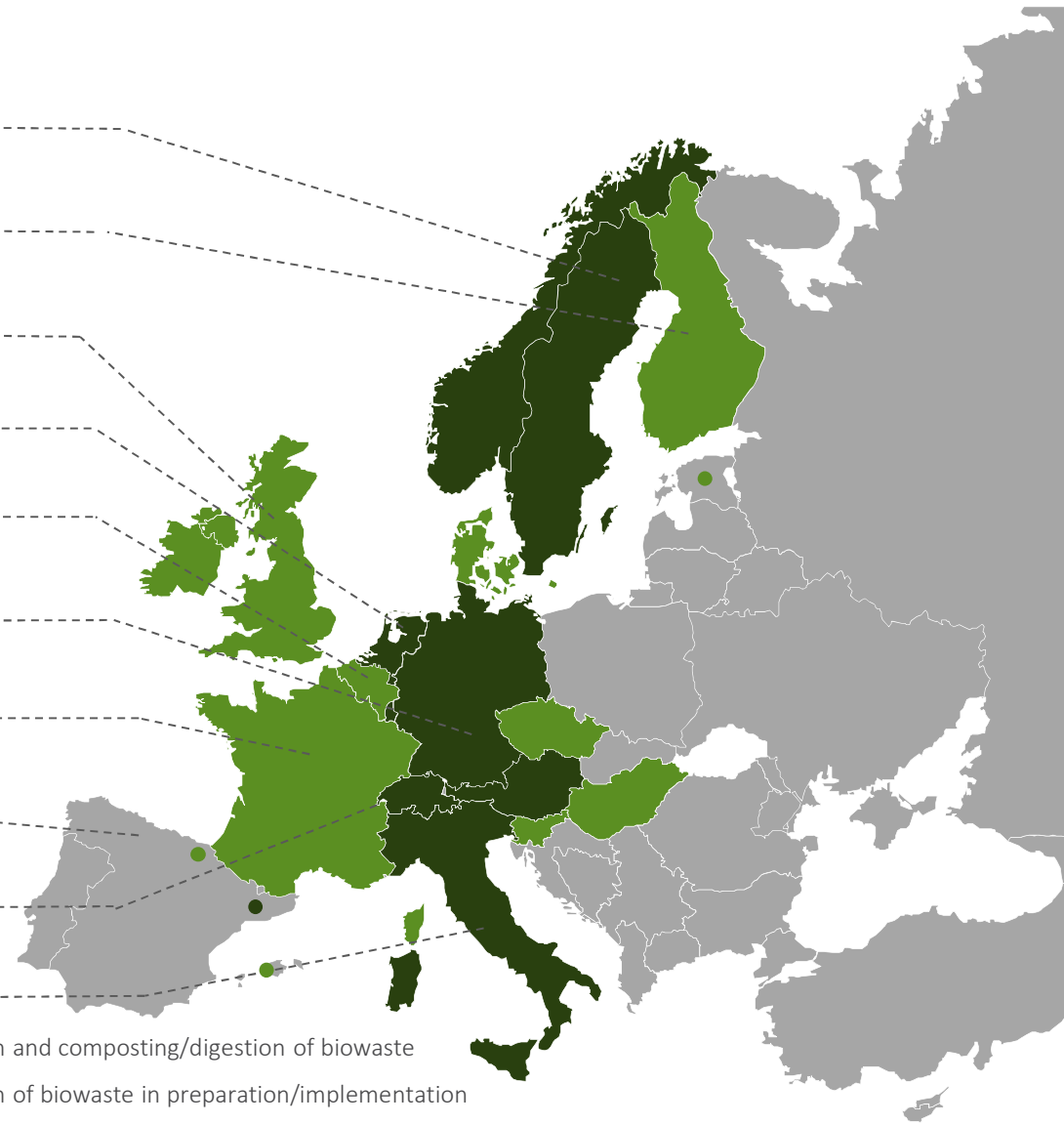
67 sites, 0.87 million tons of biowaste

Switzerland:

287 sites, 1.00 million tons of biowaste

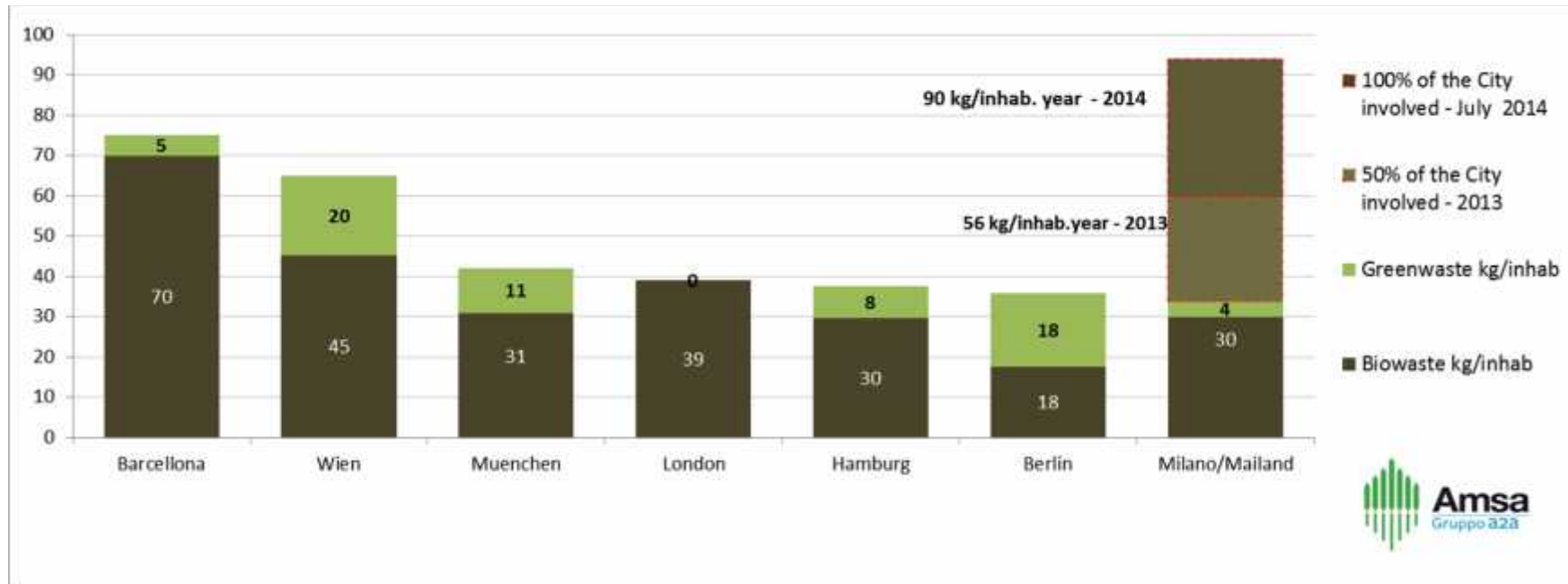
Italy:

298 sites, 5.30 million tons of biowaste



- Separate collection and composting/digestion of biowaste
- Separate collection of biowaste in preparation/implementation
- Only limited collection of biowaste

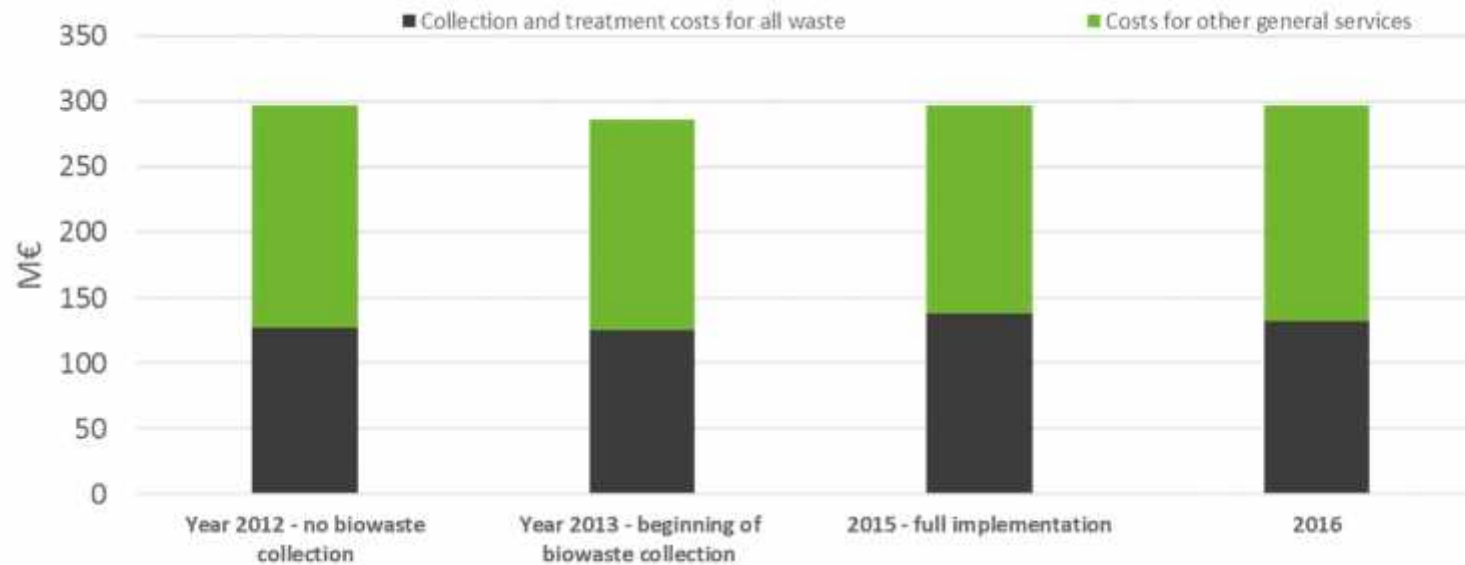
Biowaste collection is technically and economically practicable in large cities



Milan, Italy:

- 1,300,000 inhabitants
- High quality (< 5% impurities)
- High capture (90 kg/capita.year)

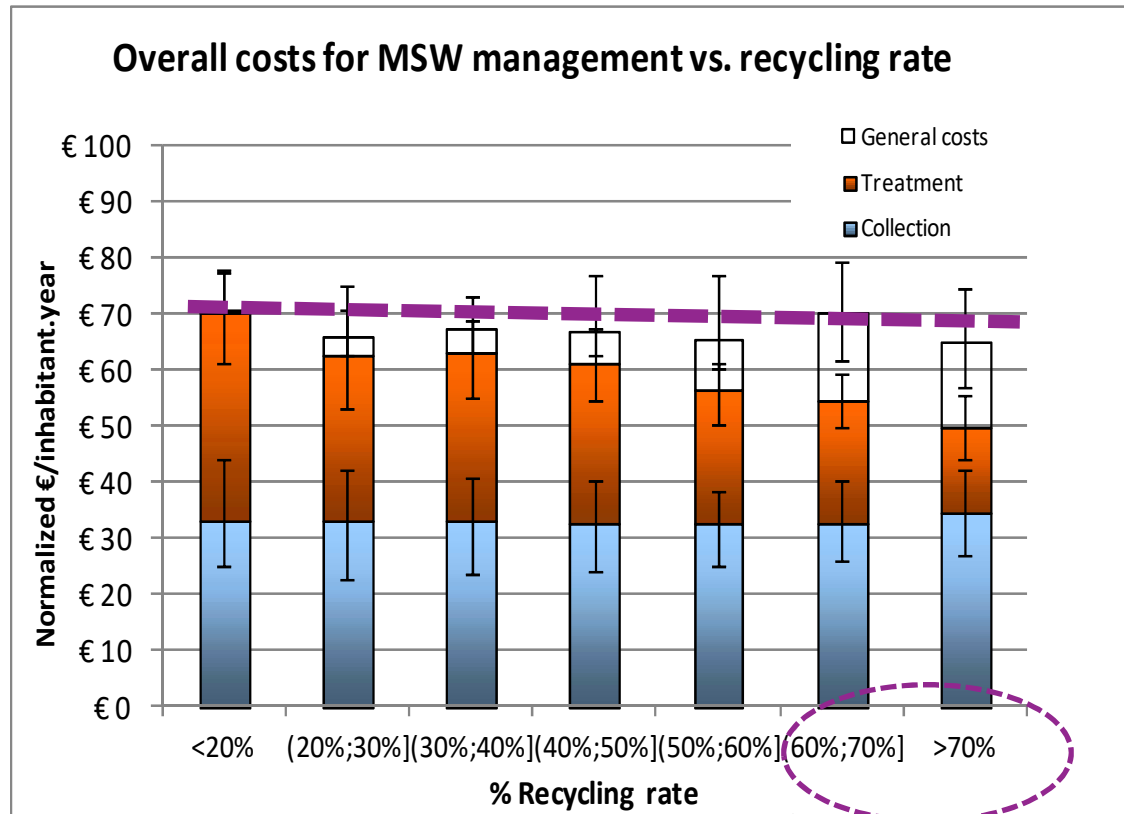
Biowaste collection is technically and economically practicable



Source: Waste yearly financial plan of Milan

- **Total costs did not change when introducing residential biowaste collection door to door**

Biowaste collection is technically and economically practicable in any municipality



Lombardy, Italy:

10,000,000 people, 1546 Municipalities (474 in mountain areas)

1100 with kitchen waste collection

Significant statistical analysis:

- Municipalities with biowaste collection showed higher overall recycling and **the same overall costs** of those underperforming

Included in JRC report: Improving Sustainability and Circularity of European Food Waste Management with a Life Cycle Approach

<http://publications.jrc.ec.europa.eu/repository/bitstream/JRC99238/lbna27657enn.pdf>

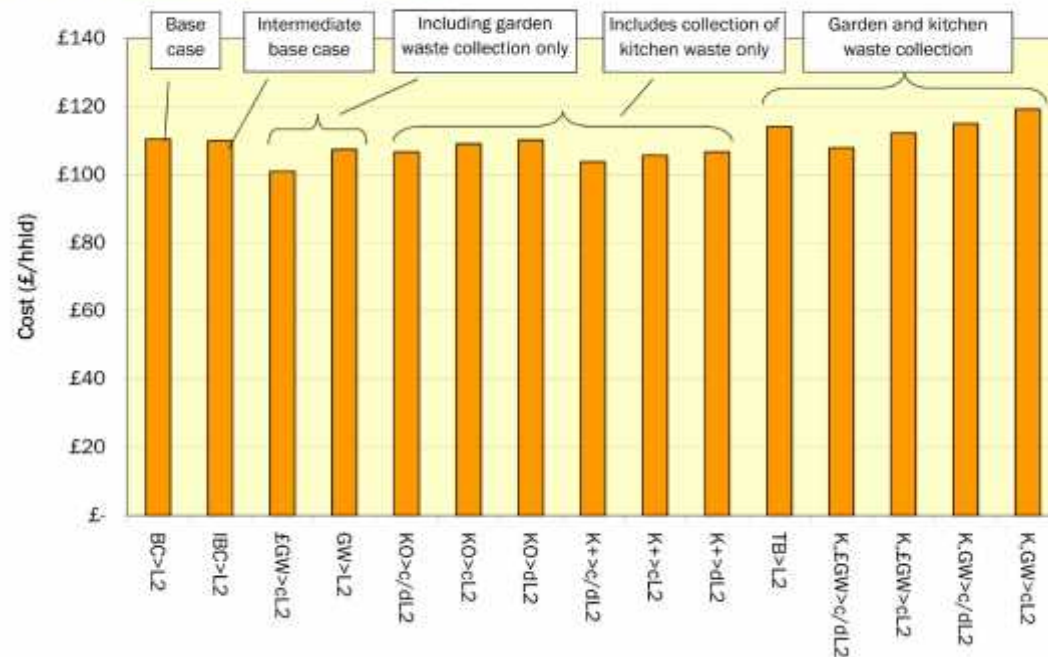


With food waste collection



Biowaste collection and cost saving

Figure 2: Updated Results Summary



Source: Eunomia, 2009

A lot of optimizations allow to **keep overall costs low:**

- Focus on kitchen waste, avoid intensive garden waste collection
- Light vehicles, driver only, bi-compartment, door to door
- Reduce collection frequencies of residual waste to a minimum (alternate weekly) and adapt those of food waste to seasonality

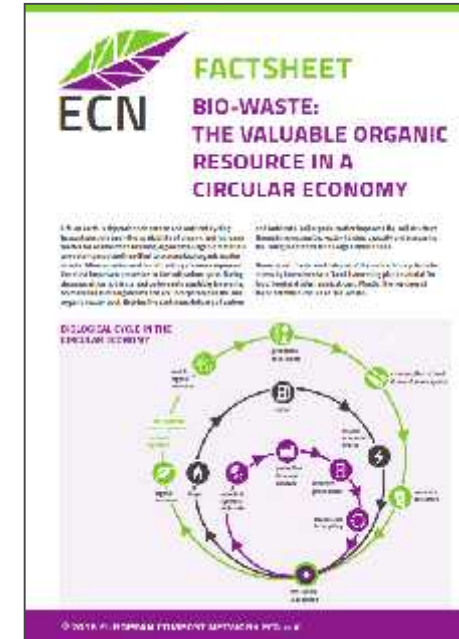
Biowaste collection



Source of photos: CIC, 2016

Resource Potential of Biowaste

- **Soil application:** production of organic fertilisers and soil improver
- **Application in horticulture:** replacement of peat in growing media
- **Contribution to renewable energy:** production of biogas for green power and biomethane
- **Saving GHG emissions**
- **Contribute to the Bio-economy:** production of bio-based products, e.g. biochemicals, bioplastics, fibres



Potential of Greenhouse Gases emissions from food waste

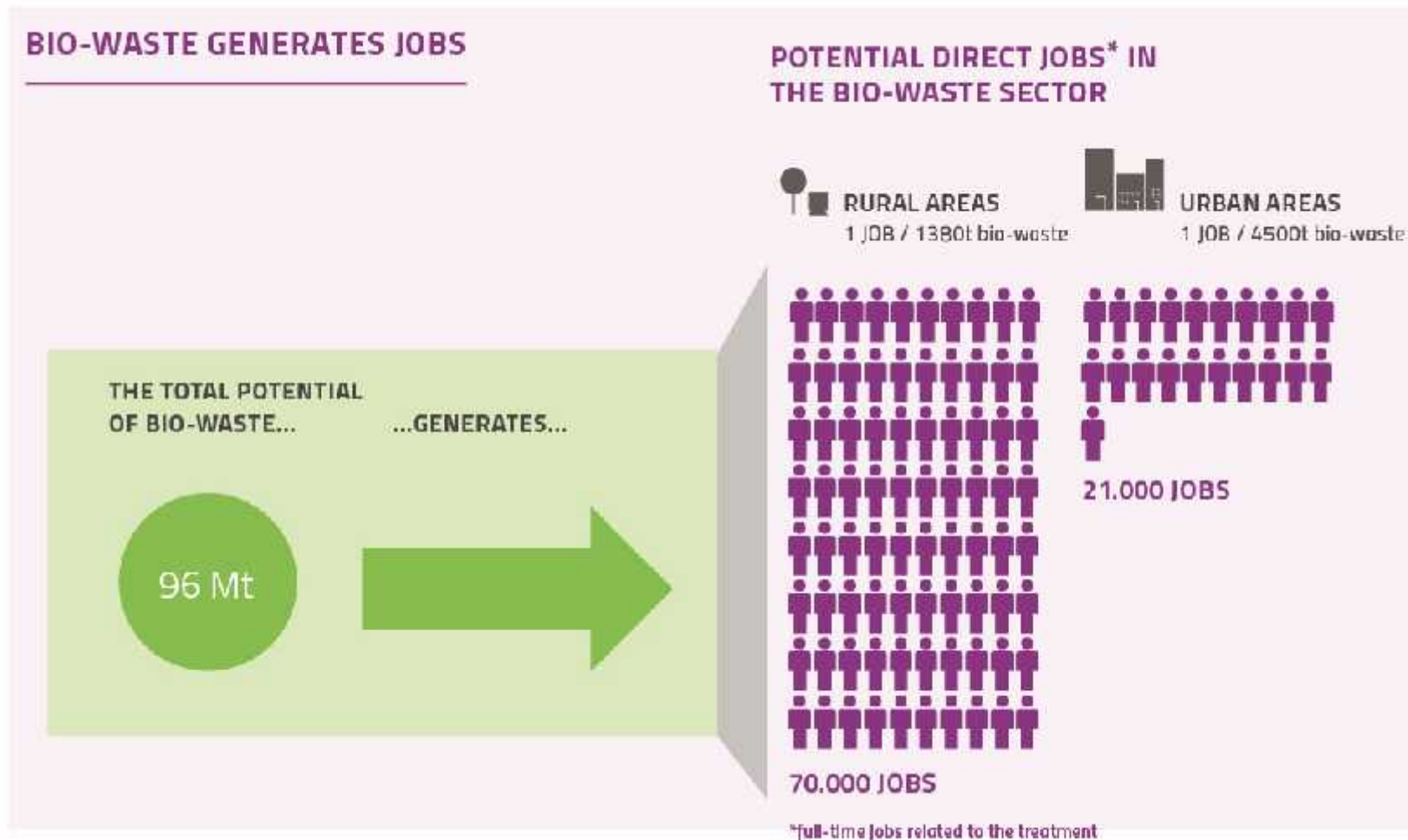
	Waste Amounts in EU27	Greenhouse gases emissions	
	t/yr (rounded figures)	t CO ₂ eq./t of food waste	Mt CO ₂ eq./yr in EU27
Food Waste 2006	89 279 000	1.9	170
Food Waste 2020	126 000 000	1.9	240

Source: European Commission (DG ENV – Directorate C), Final Report – Preparatory Study on Food Waste, 10/2010; calculated based on EUROSTAT data, national sources and ETC/SCP working paper 1/2009

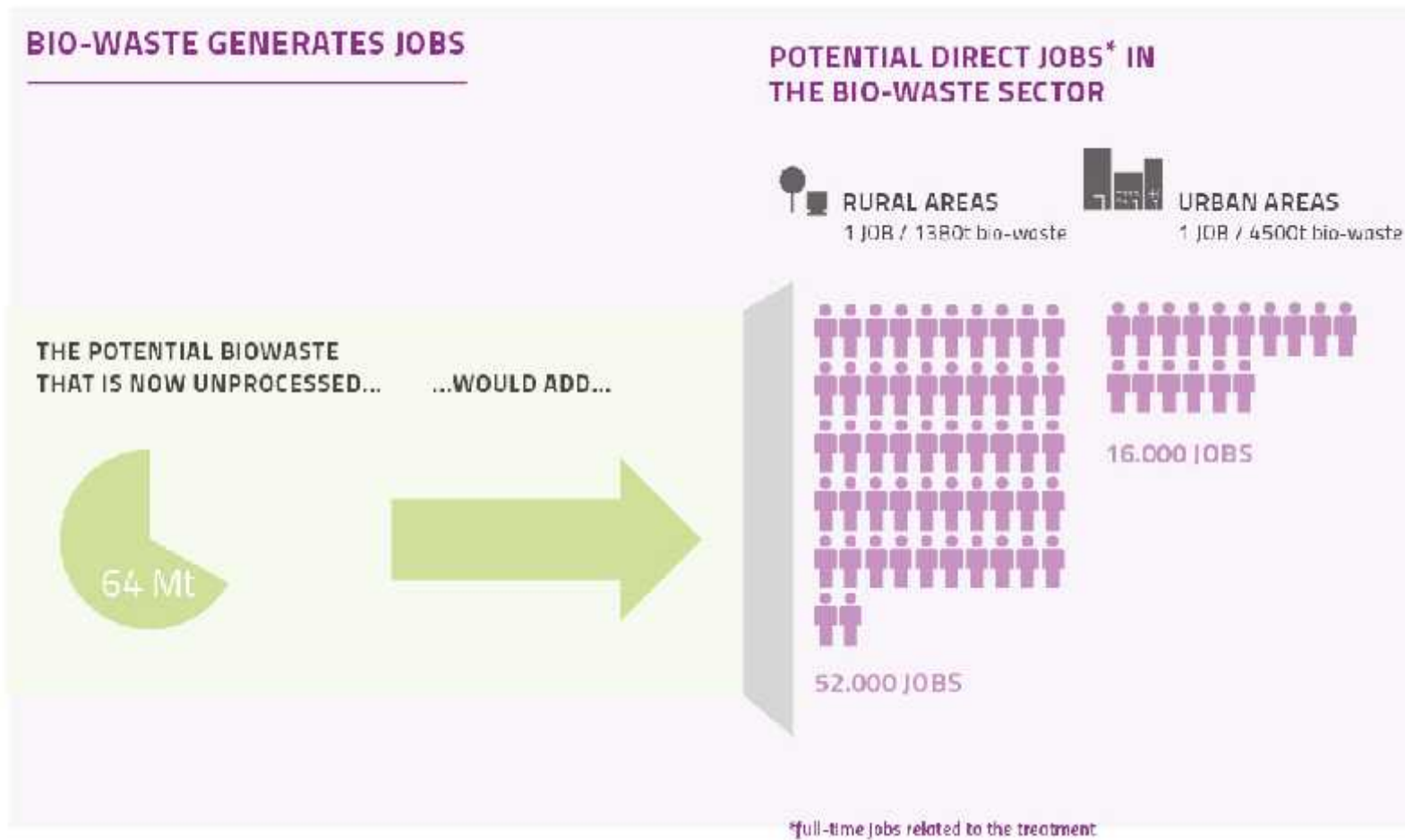
- **High potential for saving GHG emissions through prevention and recycling**



Potential for Job creation in the EU



Potential for Job creation in the EU



Further Information

ECN Homepage:

www.compostnetwork.info

- Factsheets
- ECN News
- Country reports
- ECN-QAS Manual

