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## 1 Introduction on bio-waste management in [Italy]

In Italy, national legislation has introduced in 2006 ambitious targets, namely a 65% Source Separation and Recycling Level (SSL) for each municipality. Today, biowaste, and particularly food-waste from residential source separation, is clearly addressed as the first waste fraction to tackle for municipalities planning to reach the very high SSL targets set by the National law. These high SSL levels have been easily achieved by hundreds of municipalities in Italy through the so-called “kerbside collection programs”, focusing on food waste collection with the typical Italian scheme. In 2015 The collection of biowaste currently accounts for more than 43% of all MSW separately collected and sent to recycling

## 2 National concept/strategy on bio-waste management

### 2.1 Legal framework

In Italy, national legislation has introduced in 2006 ambitious targets, namely a 65% Source Separation and Recycling Level (SSL) for each municipality. This target cannot be achieved without the separate collection of biowaste, which in Italy focuses first on food-waste.

According to the Italian Legislation, compost is defined as a soil-amendment. Compost is divided into three categories, recognized as “End-of-Waste” according to the input feedstock:

- Green Compost (GWC): compost produced from green-waste only;
- Biowaste Compost (MWC): compost produced from biowaste, including both food- and green-waste;
- Sludge Compost (SWC): compost produced including also sludge inside the mixture of different feedstock.

Compost obtained from the separate collection of organic waste has the status of EoW, while digestate is still a waste. The Italian standards for End of Waste compost are set by the national Law on Fertilizers (D.Lgs 75/2010 and subsequent amendments)

### 2.2 Waste management programs and strategies

Italy adopted targets for reducing biodegradable MSW going to Landfills in accordance with current EU Legislation; there is no obligation to collect biowaste separately, but the 65% recycling targets request municipalities to adopt separate collection of food waste (and other recyclables).

Most Regional MSW management Programs do request the separate collection of biowaste and in many cases the suggested strategy is to collect it at the doorstep.

### 2.3 National standards and technical guidelines (collection, treatment and use)

Guidelines for separate collection of organic waste have been issued by Regional and District authorities since the mid 90'; the main indications for collecting biowaste can be resumed as follows:

- Collect food waste separately from green waste
- Collect biowaste (i.e. food or green waste) with kerbside schemes whenever it is technically and economically achievable

#### **2.4 Quality Assurance Scheme (QAS) and National Quality Assurance Organization (NQAO)**

A QAS scheme for compost was started by CIC in 2003; the initiative named “CIC Quality Compost Label” (CQL) is the first voluntary program for quality compost in Italy, addressed to CIC’s associated companies.

In year 2015, there were 43 composting-facilities complying with CIC’s QAS scheme and the amount of compost labeled represents about 33% of Italy’s total compost production.

### **3 Source separated collection of bio-waste**

Today, biowaste, and particularly food-waste from residential source separation, is clearly addressed as the first waste fraction to tackle for municipalities planning to reach the very high SSL targets set by the National law.

By the end of 2015 biowaste collected separately in Italian municipalities, including food-waste and green-waste, exceeds 6 Mtons with an increase of 6,1% compared to the previous year. CIC estimates that the amounts of food-waste reached 4Mt or 66 kg/pers/yr and 2,1 Mt of green-waste or 34 kg/pers/yr, thus passing the 100kg per-capita threshold.

Hundreds of municipalities in Italy apply the so-called “kerbside collection programs”, focusing on food waste collection. This approach is based on small volume kitchen caddies fitted with biodegradable bags (i.e. compostable bioplastic liners); collection is done at the kerbside (or door-to-door collection) and adopting convenient frequencies aimed at enhancing citizen’s participation. In the last decade intensive source separation of biowaste (and other recyclables) has been extended also to medium/large towns in Italy and in metropolitan areas, achieving high participation by the population involved and reaching best-practise performances in terms of amount (between 70 and 120 kg percapita) and the quality of the collected biowaste; among these cases it is worth mentioning the high performances achieved since 2014 by Milan, a city of 1,4 million inhabitants located in a metropolitan area of about 3 million.

In 2015, CIC performed about 835 waste audits on food-waste; the average non-compostable quota of biowaste delivered to Italian composting and biogas plants is 4,8% in weight, with best-practice cases showing less than 2% impurities.

### **4 Bio-waste treatment (recycling, material/energy recovery)**

In 2015, there are according to CIC 261 composting plants and 47 AD facilities designed to recycle biowaste and other organic waste.

The industrial sector has reached a total treatment capacity of about 8,1 Mtons. The ten largest facilities exceed 100.000 tpy capacity each and together they can treat up to 2 Mtons or 25% of the total treatment capacity existing in Italy in 2015.

The number of AD&Composting plants is constantly increasing in the last decade; the 47 AD-plants have been realized with a total authorized capacity of 3 million tons. Almost all plants integrate AD with (post) composting of the digestate.

Italy’s biological treatment facilities (including composting and AD&Composting plants) mainly recycle food- and green-waste, but do accept regularly other organic fraction such as sludge from waste-water treatment plants and other organic waste from agro-industries and others. The food-waste and green-waste collected separately at Italian municipalities is recycled mostly at composting facilities (61% of the total amounts treated) while 39% are delivered to AD- and composting plants.

CIC has estimated, based on the amounts of waste delivered to Italy's composting- and AD&composting-plants, that the total production of compost reached 1,76 Mtons in year 2015.

## 5 Application and market

Around 70% of compost produced by the Italian composting plants is used in agriculture, while the remaining 30% is sold to make gardening or landscaping products. Thanks to the last update of the Italian law on fertilizers, compost can be used in other organic fertilizers as basic growing substrate, mixed growing substrate or organic-mineral fertilizers.

CIC's Compost Quality Label represents an added value to Compost marketing. Indeed, Compost plants which obtained the CIC's Label constantly increase the product quality and, as a consequence, the final user is more satisfied by Compost.

A market investigation performed by CIC shows that the mean price for Compost sold in bulk, which is the more common form of the sold Compost, is around 10 €/t and the price fluctuates between 5€/t and 15 €/t. the price of a packed material in bags, that is Compost mixed with peat or other kinds of fertilizers, is remarkably higher.

## 6 Expected trends and developments

Due to the progressive expansion of the separate collection services of food and garden waste in different municipalities and considering the trend recorded in the last 10 years, CIC estimates that by 2020 about 7,1 million tons of organic waste will be collected separately, equivalent to 120kg-per-capita and year.

The number of composting and AD facilities will further increase especially in those regions with a lack on treatment capacities.

In 2013, the Italian Ministry for Economic Development promoted an important decree on incentives for producing Biomethane. The Italian biowaste collection and recycling sector is now considering Biomethane as a good opportunity both for green incentives and a new challenge for CIC's composting and AD plants. Thus CIC has developed and is now implementing a Biomethane Label "Biometano Fertile" to assess the quality of Biomethane produced in composting and anaerobic digestion plants.

## 7 Contacts and sources of information

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Annexes: more detailed information can be found on CIC's annual Report for year 2016 (in English)

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## About CIC – Italian Composting and Biogas Association

The Italian Composting and Biogas Association (CIC) unites public and private compost producers, local authorities and others involved in compost production, like machinery and equipment constructors, growing media producers, research bodies, etc.

Since the very beginning, in 1992, CIC's mission has been to enhance recycling and prevention of biowaste, share knowledge and know-how between CIC's associates, enhance compost quality and market, perform technical training for the composting sector, assist government bodies in improving biowaste recovery.

CIC members are:

- Ordinary members representing biological treatment facilities such as composting and/or anaerobic digestion plants treating mainly organic waste from separate collection;
- Associate Members representing companies that are not directly managing waste treatment plants;
- General Association Members from the public and private sector involved in MSW management and recycling.

By end of 2015 CIC's Ordinary Members are 79, Associate Members 47 and General Association Members are currently 2.

More info on: [www.compost.it](http://www.compost.it) [www.compostabile.com](http://www.compostabile.com)  
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### International activities and memberships

CIC is a founding member of the **European Composting Network (ECN)**.

CIC strongly supports the activities of **ISWA** – the International Solid Waste Association, chairing the Working Group on Biological Treatment of Waste

CIC is a founding member of the **World Biogas Association**.

CIC is Worldwide Ambassador of **Ecomondo**, the leading Exposition on Green Economy, Waste Management and Recycling technologies in the Mediterranean Area.

CIC is a founding member of the **Mediterranean Compost Network**.