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**SIRCLES**

**Supporting Circular Economy Opportunities  
for Employment and Social Inclusion  
Good Practices Booklet**

**Spain | Greece | Palestine | Jordan | Lebanon | Tunisia | Italy**





**Supporting Circular Economy Opportunities**

**for Employment and Social Inclusion**

**Good Practices Booklet**

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# WHAT IS THE SIRCLES PROJECT?

**Supporting Circular Economy Opportunities for Employment and Social Inclusion** (SIRCLES Project) promotes social inclusion and employment opportunities for women at risk of social exclusion and young people not in education, employment, or training (NEETs) through a circular economy model applied to the organic waste sector. SIRCLES is financed by the European programme ENI CBC MED, and has a budget of €3.8 million.

10 partners from 7 Mediterranean countries have been working in the project (Spain, Greece, Palestine, Jordan, Lebanon, Tunisia and Italy) and have **improved the lives of 175 people at risk of social exclusion**, most of them **NEETs and women**. These numbers mean that the original objective of 107 new jobs created has been solidly overcome.

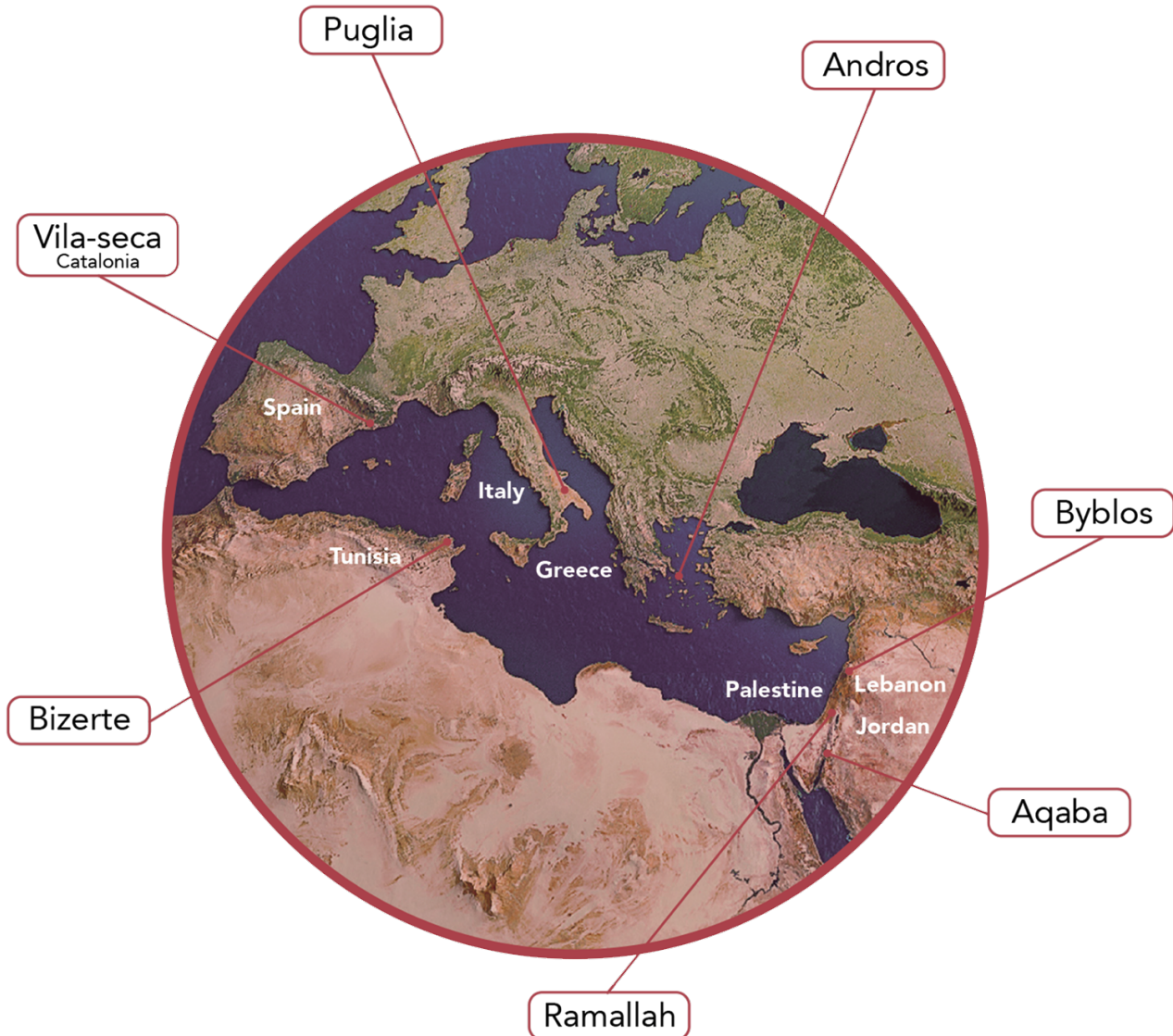
With SIRCLES, **five composting areas** have been created in Spain, Greece, Jordan, Lebanon and Tunisia; and **the performance of 2 pre-existing** composting plants in Palestine and Italy **have been enhanced**. These facilities have been designed to be self-sustainable and are a circular economy solution to treat the organic waste produced in the surrounding areas.

The areas collect biowaste from Ho.Re.Ca. sector in the area with the aim of composting it. The initiatives seek to be reproducible and will also be useful to generate knowledge applicable to future circular economy policies in the areas benefited from this project.

To know more about SIRCLES check out our website:

**<https://www.enicbcmed.eu/projects/sircles>**

# COMPOSTING PLANTS IN THE TARGETED AREAS



# BIOWASTE AND SOCIAL INCLUSION

**Biowaste management is too often considered as a pure technical activity**, in which some regulation or national obligation comes into force and municipalities are forced to implement separate collection of kitchen waste, with lack of resources and poor economic viability.

**Within SIRCLES, this paradigm has been changed.** The good practice that is showcased here is **how you can make things work when you get back to people**, with a special focus on **social inclusion**.

“We consider the employment of NEETs and the **creation of green jobs in the biowaste sector a success story** itself”, says Sawsan Qudsi SIRCLES partner and manager in Palestine. Unemployed people found a completely different approach to find a new job.

“I will not talk about the scientific part, I will say that it is an **awesome experience**, you learn a lot of things and the most important thing is that **we take care of our place and we leave something good behind**”, says Aphrodite, **formerly unemployed woman now taking care of separate collection and composting** in the island of Andros, Greece, after receiving training and gaining new skills.

This kind of activity matches perfectly with small scale and decentralized composting schemes, in which daily manual tasks and **constant contact with citizens is key to ensure the success** of the pilot.





**The citizens have been involved and have been a key piece to the success of SIRCLES.**

**Images of different activities carried out in Catalonia, Tunisia, Greece and Palestine.**



# FROM WASTE TO RESOURCE

**Biowaste represents**, by weight and on average, **around 40% of the municipal waste**; while in some countries this value is around 25% - 30%, in others it can get to 60% and even 70%.

In recent years, biowaste has gained prominence around the world and especially in Europe. And it is not surprising.

Biowaste, like coins, has two sides. On the one hand, we can identify all the problems arising from its improper management. When biowaste is sent to landfills, often uncontrolled, they can generate many different impacts (pollution of soil and ground water, emissions of greenhouse gases - methane and others -, risk of fires, modification of the landscape, diffusion of vector-borne diseases, loss of resources, etc). But, on the other hand, **proper management** of Biowaste based on a more circular, green and sustainable economy would open up a **world of opportunities**, contributing to solving some of these **environmental issues**: a more **efficient use of resources**, the **fight against climate change, soil protection** and **better fertilization** of crops, the possibility of producing **renewable energy** and a further step towards **food sovereignty**, are some of the most important opportunities it brings.

Furthermore, **SIRCLES has demonstrated that circular economy can lead to a higher rate of job creation** and generate greater well-being and opportunities for the local communities involved.

In this sense, **solving these issues** and **transforming them into new opportunities** requires a **look at biowaste as a resource**.

# SMALL SCALE AND LOW COST COMPOSTING

The **main challenge** when trying to implement biowaste collection and treatment schemes, especially in southern Mediterranean countries, is its **economic viability when compared to cheap and improperly managed landfill** or open dumpsites.

**The good practice validated in SIRCLES has been a model in which very small scale composting plants have been built with low cost and simple technology**, allowing them to become a reference for the so called “decentralised model”. Many of them are based on the use of modular composting boxes, small loaders, simple mixers adapted from agricultural ones, small scale screens.

They may require more operational effort as they may require manual tasks, but they are a perfect example of how the paradigm of **investing in expensive technology can be overturned by focusing on the creation of green jobs**, with an eye on social inclusion.

In **Andros, Greece**, for instance, for the **first time in Europe** and probably worldwide, the **modular composting box scheme** based on a series of 1m<sup>3</sup> boxes (up to now typically used for community composting projects where citizens go there individually to deliver their kitchen waste) have **been used to treat food waste collected door to door**, after which is sent to the composting area **operated in by people at risk of social exclusion**. This scheme of 1m<sup>3</sup> boxes can be found in Jordan, Catalonia and Italy, too, whereas the project in Lebanon, Tunisia and Palestine have tried other technologies to collect their many different success stories.



# SENSITIZING PEOPLE AND RESTAURANTS

Sensitization **campaigns are key when it comes to deal with the daily life of citizens**, and also when we have to interact with some logistical and practical issues for instance in restaurants and hotels.

Some interesting approaches were followed in order to showcase the feasibility of this model:

- In **Jordan, some luxury hotels were involved** in the project and started separating biowaste. They took this opportunity to showcase this good practice with their customers.
- In **Palestine, restaurants in Ramallah started separate collection** with **NEETs and women constantly assisting** the operators in the kitchen and finding the most appropriate solutions to allocate the bins.
- In **Italy, restaurants of Alberobello** (Valle d'Itria, Puglia), a top level touristic municipality well known internationally, participated in the **"Green label campaign"** by **committing themselves to undergo periodic quality checking** and, whenever possible, **use some compost in their private garden**.
- In **Catalonia (Spain), a restaurant inside of an enormous local amusement park and two hotels around** provided kitchen waste to be treated in the area, becoming part of an inclusive and circular model.



# SIRCLES: ONE PROJECT, SEVEN COUNTRIES

**SIRCLES is a consortium of 7 Mediterranean countries**, led by the Waste Agency of Catalonia, and **with 9 partners: Training and Insertion Labour Company**, from Spain; **the National Technical University of Athens** and the **Organisation Earth**, from Greece; **House of Water and Environment**, from Palestine; **EDAMA Association for Energy, Water and Environment**, from Jordan; the **René Moawad Foundation**, from Lebanon; Tunisia Ecotourism, from Tunisia; and the **Italian Composting & Biogas Consortium** and the **ARCO-Action Research for CO-Development/PIN S.c.r.l.**, from Italy.

These partners have applied different approaches adapted to the situation of each region, but **sharing the same goal: the creation of job opportunities within the unemployed young people and women at risk of social exclusion.**

The following pages show:

1. The composting area in Vila-seca, Spain
2. The composting area in Andros, Greece
3. The composting plant in Beitello, Palestine
4. The composting area in Aqaba, Jordan
5. The composting area in Hbaline, Lebanon
6. The composting area in Bizerte, Tunisia
7. The sensitizing campaign in Puglia, Italy

# 1. COMPOSTING AREA IN VILA-SECA, SPAIN

Training and Insertion Labour Company (FiTEI, for its initials in Catalan) built a composting area in Vila-seca, a town in southern Catalonia, Spain. FiTEI held in this area trainings on community composting and hired 12 of the 24 people trained. These activities were aimed for the inclusion of NEETs and Women at risk of social and labour exclusion.

Once the project has reached its end in the Catalan pilot, the area is still functioning, and FiTEI has reached an agreement to replicate this experience in a nearby huge educational campus.

Number of people trained

24

Number of people hired

12



### Municipality

Vila-seca (Catalonia, Spain)

### Location

Park "La Torre d'en Dolça"

### Promoters

Training and Employment  
Labour Insertion Company and  
Catalan Waste Agency

### Inauguration date

February 16, 2022

### Treatment capacity

80 tons of biowaste a year

### Technology

Community composting  
in 24 composters

### Total investment of the composting area

€87,470.

**Formació  
i Treball**  
empresa d'inserció

The Catalan pilot area was built in Vila-seca, a southern Catalonia village that lays in a very touristic area with one of the most visited theme parks in Europe (PortAventura) and many hotels and touristic venues. **FiTEI signed agreements with one of the restaurants of PortAventura and two local hotels** (La Marinada and H10 Imperial Tarraco). The terrain was ceded by the local city council, who also provides with shredded pruning, which is used as structuring dry material for the process.

**Thanks to these agreements, the area has had a steady income of biowaste without impurities that has generated high-quality compost.** The area works with 24 1m<sup>3</sup> in rows of 6, being one of them used to store dry materials. This system allows 80 tons of biowaste to be treated yearly.

FiTEI carried out two separate trainings there of 12 people each, especially aimed at **NEETs and women at risk of social exclusion**. Half of these people were hired after to work during 6 months in the area. In total, **24 people have been trained and 12 have been hired in circular economy jobs.**

The **facility's future is now ensured** for the following year after the project, thanks to the collaboration with the local authorities, and **the area employs now 2 persons trained under SIRCLES**. Additionally, a local educational campus in Tarragona, the biggest nearby town, has signed an **agreement to build a similar facility**. FiTEI will train workers of the facility in organic waste management and the composting process, **replicating the lessons learned thanks to SIRCLES**.

## 2. COMPOSTING AREA IN ANDROS, GREECE

The National Technical University of Athens (NTUA) and Organisation Earth (OE) built a composting area in Korthi, a village in the island of Andros, Greece. Thanks to the facility a new system of separate organic waste collection has been implemented. 28 NEETs and Women have been trained in community composting, 20 of which have been hired afterwards under the SIRCLES Project.

After SIRCLES, the Municipality of Andros has hired permanently 5 of the trainees, and other areas of the island have started showing some interest in building similar areas.

Number of people trained

28

Number of people hired

20





### Municipality

Andros (Greece)

### Location

Ormos Korthiou

### Promoters

National Technical University  
of Athens and Organisation  
Earth

### Inauguration date

November 30, 2022

### Treatment capacity

160 tons of biowaste a year

### Technology

Community composting  
in 24 composters of 1m<sup>3</sup>

### Total investment of the composting area

€158,000.



ΕΘΝΙΚΟ ΜΕΤΣΟΒΙΟ  
ΠΟΛΥΤΕΧΝΕΙΟ



The Greek pilot in Korthi, Andros is highlighted by a **holistic approach in waste collection**. Due to the small scale of the village, the partners were able to **cooperate with restaurants, markets, cafes, schools and households**.

**Through community events, the information regarding food waste handling was shared with inhabitants and professionals.**

The citizens and shops used a key to access the food waste bin, which was locked so that only informed citizens would use it. This way, the **impurities collected were below 3%**. The households were provided with leaflets, key to the bins, a portable brown bin and compostable bags.

The 24 1m<sup>3</sup> boxes were mixed manually 3 times per week. One month after staying in a box, the mixture was transferred to a second box. Then after another month it was transferred to a third box, where it stayed for one more month before sieving. **The fine fraction after sieving was bagged and returned to the citizens as a reward.**

**The pilot facility was able to withstand the summer tourist season, where waste production is at its peak.** During the winter months the biowaste collected was on the average 350 kg/week, but in August it reached 750 kg/week.

**The pilot was embraced by the municipality**, which after the end of the in-job training, **hired 5 of the trainees** to continue the work. **Other areas of Andros not participating in the project** are willing and **asking for a similar pilot** to be built in their area.

# 3. COMPOSTING PLANT IN BEITELLO, PALESTINE

House of Water and Environment (HWE) had previously built a composting plant un Beitello, a village near Ramallah, Palestine, under the ENPI CBC Med SCOW Project. The collection of the separated organic waste has been severely enhanced thanks to the SIRCLES Project. After this initiative, it now makes high quality of compost from the separate organic waste of nearby hotels, restaurants and vegetable markets.

59 NEETs and women have been trained during SIRCLES Project, 23 of which have been hired. The composting plant has been a real change to their lives and the environmental sustainability of the region.

Number of people trained	Number of people hired
59	23



### Municipality

Ramallah (Palestine)

### Location

Beitello village

### Promoters

Ramallah Municipality and  
Beitello village Council

### Inauguration date

December, 2015

### Treatment capacity

1300 tons of biowaste a year

### Technology

Open windrows

### Total investment of the composting plant

€181,394



HOUSE OF WATER & ENVIRONMENT

The Palestinian composting plant in **Beitello village, near Ramallah**, had been built in 2015 under the ENPI CBC Med SCOW Project. However, the plant only incorporated organic waste from local farmers. HWE saw in SIRCLES an opportunity to **enhance the circular economy in the area**, involving also the **people at risk of social exclusion**, hotels, restaurants and the local municipality by setting up a **new collection system**.

Under SIRCLES, **sensitization campaigns** were undertaken with local stakeholders, extending the knowledge of the importance of separate collection and composting.

A system of **separation at source** at the local restaurants, hotels and vegetable markets was developed. The **organic waste** was then treated at the composting plant and **transformed into compost**. This fertilizer was then delivered to local farms and hotel gardens, whose owners saw improve the physical, chemical and biological **properties** of their **soils**. **59 NEETs and women at risk of labour exclusion** were trained during this process and **23 of them were hired** afterwards.

The lessons learned at the plant have been shared with local students, allowing visits at the composting plant and distributing compost. This has had a great impact in the society, as the **Ministry of Local Government has adopted composting in its future Solid Waste Management Strategy**.

**SIRCLES Project had a good impact** not only on **biowaste management**, but also on **people** and even the way of thinking of many **stakeholders**.

# 4. COMPOSTING AREA IN AQABA, JORDAN

EDAMA Association for Energy, Water and Environment built a composting area in Aqaba, Jordan. The facility has a mix of open windrow and modular composting boxes technology, and collects organic waste from nearby hotels. 38 NEETS and Women have been trained in the pilot area and 8 of them have been hired thanks to the ENI CBC Med funds.

Number of people trained

38

Number of people hired

8



### Municipality

Aqaba (Jordan)

### Location

Alkhadraa

### Promoters

EDAMA, Association for Energy,  
Water and Environment

### Inauguration date

January 31, 2023

### Treatment capacity

728 tons of biowaste a year

### Technology

10 Modular composters  
and 13 open windrows

### Total investment of the composting area

€77,326.04



In Aqaba, Jordan, SIRCLES pilot plant was initiated with a **primary focus on transforming organic waste from local hotels into valuable compost.**

**Five hotels** in the area actively participated in the inaugural project phase. **The achievement is a testament to the robust partnership between EDAMA and the local government authority, ASEZA,** underscored by an official agreement offering essential support.

Aqaba composting plant showcases impressive capabilities, capable of processing up to 728 tons of diverse organic waste types, including food, garden, and agricultural waste, resulting in an annual output of 100/120 tons.

During the pilot phase, a dynamic team of **eight NEETs and women individuals, actively contributed to the project's implementation and operation.** Their training and experiences they gained will play a vital role in shaping **future sustainability initiatives,** as well as exploring broader opportunities within the green sector.

This reflects SIRCLES' adeptness at transforming challenges into opportunities, **promoting sustainability within the Aqaba community.** It is important to note that the long-term sustainability of the project remains a subject of ongoing consideration.

# 5. COMPOSTING AREA IN HBALINE, LEBANON

The René Moawad Foundation (RMF) built a composting area in Hbaline, Lebanon. The facility has a different technological approach to composting compared to the other SIRCLES pilots: in-vessel composting tunnels with forced aeration. 38 people at risk of social exclusion have received training in circular economy applied to the biowaste sector in the area, which receives organic waste from 17 local producers of the Ho.Re.Ca sector.

Number of people trained	Number of people hired
38	8



### Municipality

Union of Jbeil Municipalities  
(Lebanon)

### Location

Hbaline

### Promoters

René Moawad Foundation

### Inauguration date

November 8, 2022

### Treatment capacity

1000 tons of biowaste a year

### Technology

Composting tunnels with forced  
aeration

### Total investment of the composting area

€165,000



RENÉ MOAWAD FOUNDATION  
مؤسسة رينه معوض

The composting pilot in Hbaline, Lebanon implemented by RMF is **demonstrating the role of composting in shaping a circular economy in the country.** The project, which is part of the SIRCLES project funded by ENI CBC Med, is composting **food waste from restaurants and wholesale vegetable markets in addition to municipal landscape waste.**

The facility in Hbaline consists of **four container composters** placed in 4 corners centred by the waste receiving area. The waste receiving area is close to the composting chamber, and the wood chipper is also nearby, so that food waste and carbon material can be mixed easily with minimal hauling. Moreover, being composted in an **enclosed volume with odour control** and leachate management present the outmost advantage for the community that once perceived composting as a putrid process generating odours and attracting pests.

The facility also has a solar grid system that provides off-grid power, which reduces operating costs. Additionally, **the collaboration with local restaurants and wholesale vegetable markets represents an essential good practice.** This partnership ensures a **clean source of organic materials with minimal contamination.**

To summarize, **Lebanon pilot faced three primary obstacles: changing local attitudes toward composting, ensuring a steady energy supply, and obtaining pre-sorted organic waste at the source.** These challenges were effectively addressed by the mitigation measures described earlier, which can be regarded as exemplary composting practices.

# 6. COMPOSTING AREA IN BIZERTE, TUNISIA

Tunisia Ecotourism (TET) has built a composting area in Bizerte, Tunisia, in a facility with open windrow composting technology next to farm fields that are also operated by the SIRCLES-hired trainees and workers. TET has trained 121 NEETs and women in Tunisia, 80 of which have been hired afterwards. It has been by far the most successful pilot regarding the creation of job opportunities for the people in the area.

Number of people trained

121

Number of people hired

80





### Municipality

Bizerte, Tunisia

### Location

Beni Amar

### Promoters

Tunisia Ecotourism

### Inauguration date

June 9, 2022

### Treatment capacity

650 tons of organic waste a year

### Technology

Open windrows

### Total investment of the composting area

€99,104.5



The **trainings carried out by TET in Tunisia reached 121 NEETs and Women** at risk of social inclusion, **80 of which have been hired afterwards**. These numbers have been the biggest success of the consortium regarding job creation.

The **area has hosted over 300 schoolchildren and 50 environmental associations**, too, and continues to promote the **circular economy through environment education** & management of organic waste treatment and learning about agriculture. **This action is part of the promotion of good practices of the SIRCLES project**. The employees are part of the coaching and practical training process, they accompany the visitors, provide them with the necessary support and share with them all their knowledge in the field.

The cooperation with the Ministry of Agriculture AVFA & CFPFA training center, continues even after the finalization of the 4 sessions of trainings. **TET often welcomes at the composting site groups of young people who follow a professional training** on the production and exploitation of aromatic and medicinal plants.

The feasibility of such sustainable projects should not be evaluated only on an economic basis, but also by taking into account socio-environmental considerations, such as **decreasing environmental threats** and the negative impact on human health, **providing work opportunities, increasing incomes**, as well as **reducing operating costs linked to landfilling**. And the facility in Tunisia **has been such a success scenario for all these objectives**.

# 7. SENSITIZING CAMPAIGN IN PUGLIA, ITALY

In the southern Italy region of Puglia, separate collection was already underway and compost was being produced in pre-existing composting plant. The Italian Composting and Biogas Consortium (CIC, for its initials in Italian) carried out sensitization campaigns in the municipalities of Alberobello, Locorotondo, Noci and Putignano, aiming to improve the quality of the compost through a better food waste collection at source.

During this process, CIC has trained 25 people, most of them NEETs and Women at risk of labour exclusion, in circular economy applied to compost. 7 out of these 25 people have been hired to work afterwards at a new, small-scale composting area built in Alberobello.

Number of people trained	Number of people hired
25	7



### Municipality

Alberobello, Locorotondo,  
Putignano and Noci

### Location

Puglia region, Italy

### Promoters

Italian Composting and Biogas  
Consortium

### Citizens sensitized

1840

### Commercial activities sensitized

190

### Green Label Campaign

35 agreements

20 awards



The Italian pilot is peculiar: **separate collection of food waste is already implemented** there and a large scale composting facility is operational since many years, managed by a highly committed woman entrepreneur, Lella. But **paradoxically, citizens were not much aware of the real purpose** of separating their kitchen waste and – most importantly – **didn't know what compost is. So the pilot focused on raising awareness among citizens** through information campaigns, aiming to improve their knowledge and the quality of separate collation in order to reduce impurities in the compost plant.

In Italy, the pilot aimed at creating a sustainable and inclusive waste management system. To ensure the successful implementation and operation of the project, **seven NEETs and women have been engaged**. CIC performed hundreds of field activities such as surveys, information point, sensitization with restaurants which became part of a “green label campaign”, **awarding those structures that follow adequate practices** in the management of organic waste by advertising their commitment to the environment in the area. In particular, those who:

- **Perform separate collection of kitchen waste**, with no impurities or plastic contaminants.
- **Exclusive use of certified biodegradable and compostable bags** according to UNI EN 13432.
- Use packaging for takeaway delivery made with **materials which can be easily recycled**.
- **Use compost**, the natural fertilizer final product of the waste recycling process organic, in the green spaces of their premises.



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