

WE WORK FOR THE PERSONS

The objective of **SIRCLES** is to promote the social and labour insertion of people at risk of social exclusion, providing them with skills and jobs in the organic waste management sector. In Bizerte (TUNISIA), the project is carried out in the community composting area built in Beni amar by the Tunisia Ecotourism Company with European funds ENI CBC MED.



MARIEM

"I learned a lot of new composting and farming techniques, now I use them even at home"



SOULEF

"For the first time, I was able to support my family financially because of this chance."



MOHAMED

"Despite coming from a farming family, the training program altered my outlook on farming and taught me the

correct practices."

During the project, **132 NEETs and Women at risk of social exclusion** around Bizerte have received training in composting. Afterwards, **80 of them have been hired to work at the SIRCLES composting area** in Bizerte. With the on-site technical expert, it adds up to 81 new jobs.

TECHNICAL FEATURES OF THE BIZERTE COMPOSTING AREA

MUNICIPALITY : Bizerte (tunisia)

LOCATION : Beni Amar

PROMOTERS : TUNISIA ECOTOURISM

SERVICE HOLDER : TUNISIA ECOTOURISM

INAUGURATION DATE : February 16, 2022

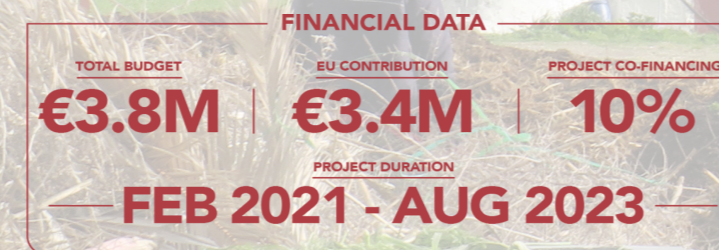
NOMINAL TREATMENT CAPACITY : 128 tons of biowaste per year

TECHNOLOGY : open windrows

MACHINERY : Trash containers, mini tractor leader , mixer screener ,shredder, conveyor belt

TOTAL INVESTMENT COMPOSTING PLANT, MACHINERY AND COMPLEMENTARY ACTIONS : €99 104,5

AREA FINANCING : ENI CBC MED through SIRCLES



www.enicbmed.eu/projects/sircles @SirclesProject



SUPPORTING CIRCULAR ECONOMY OPPORTUNITIES FOR EMPLOYMENT AND SOCIAL INCLUSION

THE BIZERTE COMPOSTING AREA

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



THE SIRCLES PROJECT

The **SIRCLES** project promotes social inclusion and employment opportunities for women at risk of social exclusion and young people not in education, employment, or training through a circular economy model applied to the organic waste sector. SIRCLES is financed by the European programme ENI CBC MED, has a budget of 3.8 million euros, is led by the **Waste Agency of Catalonia** and has as partners in Tunisia the **Tunisia Ecotourism company**.

7 Mediterranean countries are working in the project (Spain, Greece, Palestine, Jordan, Lebanon, Tunisia and Italy) and it **will generate at least 107 new jobs**.

With SIRCLES, a **composting area** has been created in Bizerte, a facility for the **self-sustainable circular economy** which can generate work in the surrounding area.

The area collects biowaste from hotels restaurants and vegetable market in the area with the aim of composting it. The initiative seeks to be reproducible and will also be useful to generate knowledge applicable to future policies in the area of the circular economy.





In the early hours of the day, workers arrive donning their uniforms. The municipality workers along side the collectors have already delivered the bio-waste collected from the vegetable market, hotels, and restaurants to the reception area. A tractor departs to gather manure from collaborating farms and neighbors, and upon its return, it unloads the manure onto the floor of the composting area. Once there, the colleagues carefully inspect the collected material to remove any inappropriate materials. The quality of the bio-waste is crucial for producing high-quality compost. The organic waste is then weighed, and an appropriate

amount of structurant material, such as vegetable remains and shredded pruning, is added. If necessary, the mixture is watered. Afterward, it is thoroughly mixed and formed into windrows that have a width of 3-3.5 meters and a height of 1.8-2.2 meters. The piles are diligently monitored every day to ensure the control of three vital parameters: temperature, aeration (oxygen), and humidity. This regular examination guarantees the optimal conditions for composting. Finally, at the end of the working day, all surfaces and tools are cleaned using pressurized water. Day-to-day life in this environment is far from

COLLECTION

Collection
The organic waste collected by our team and with cooperation of the municipality of Bizerte
A first separation of different types of waste carried out in the market



RECEPTION, SELECTION AND MIXTURE

Inappropriate materials are manually separated to ensure the quality of the organic matter. It is then mixed with the necessary portion of structurant and placed in triangular windrows piles

COM-

The composting process involves several steps, including waste collection, reception, sorting, and control of the raw material, pre-tredding, shredding, homogenization, windrowing or windrowing, turning, screening and sieving, storage and conditioning, and evaluation of the maturity of the compost.

Waste collection involves the separation of glass, metals, plastics, and certain fractions of paper and cardboard from the organic waste. The raw material is then sorted and controlled to ensure the quality of the compost. Pre-tredding is used to adjust the moisture content of the raw material to between 50 and 60%.

Shredding is used to reduce the size of the particles, and homogenization is used to mix different types of waste to achieve a C/N ratio of approximately 30 and a moisture content of approximately 60%. The mixed waste is then placed in triangular windrows of 1.5 to 2m high and 1.5 to 3m wide at the base and between 10 and 20m in length.

During the composting process, the windrows are turned over regularly to aerate and re-moisten the compost. Monthly turning is carried out up to 4 to 5 times in total. After the composting process is complete, the compost is screened and sieved to recover the non-composted material, and the rest of the fine and medium compost is distributed according to its destination.

The ripe compost is stored under cover in a ventilated environment and then packaged in bags of different sizes. The maturity of the compost is evaluated based on its color, smell, texture, pH, sulfide content, C/N ratio, mineral nitrogen forms, and chemical oxygen demand. Phytotoxicity tests can also be conducted to determine



RETURN TO THE FIELD

The compost is used for study actions and social and environmental awareness campaigns. A part is transferred to farmers and hotels and part of it used in the composting site for cultivation beds



SIEVING

At the end of the maturation phase, the compost is extracted and sieved with a square mesh sieve to separate the larger particles. The resulting material is already composted and continues its maturation phase outside.

