
SYMBIOSIS Project

**Symbiotic Networks of Bio-Waste Sustainable
Management**

2nd Periodical report

Date:

August 2019

About the project

SYMBIOSIS promotes re-manufacturing, reuse and recycle, and transforms one industry's waste to another's raw material and/or fuel, to pave the way for a more circular economy for the regions, where waste is eliminated and resources are used in an efficient and sustainable way. The direct beneficiaries of Symbiosis project will be the 'producers' and 'users' of bio-wastes that include a large number of companies and agro-industries inside the cross-border area. The common platform of SYMBIOSIS project will meet the 'offer' with the 'demand' of bio waste creating synergies and business opportunities providing new solution for exploitation of bio-waste. Scope is the real matching of those companies and the sign of cooperation agreements among them. Moreover, the local authorities responsible for waste management will conduct pilot testing for the exploitation of urban and agro-waste and will develop their Action Plans for bio-waste management and separate treatment. Last but not least, experts will conduct studies on the environmental and economic impact of the project to the participated regions.

Main target

The project main objective is to set up an integrated, sustainable, bio-waste management and trading scheme between the partner regions of Western Macedonia in Greece (former pref. of Florina) and the municipality areas of Bitola and Novatsi in Republic of North Macedonia following the Industrial Symbiosis concept. SYMBIOSIS will develop symbiotic networks bringing together companies and stakeholders from all business sectors, aiming to improve cross industry resource efficiency through material trading and sharing assets in an environmentally sustainable way.

Specific objectives

- To set-up a cross industry resource efficiency through organic material trading and sharing assets;
- To create industrial sustainable networks especially in the agro-food industry;
- To achieve maximum efficiencies in energy and water use;
- To have a reference point where the demand will meet the offer of bio-waste materials in CBC area;
- To improve the local policies on the management of bio-waste streams and tackle this issue individually following the directions of the EU policy for less bio-waste to the landfills and better utilization for other uses;
- To improve the environmental benefits by reducing the bio-waste streams that were disposed into landfills;
- To generate tangible social benefits to local communities by better use of bio resources from the food industry in favor to social activities;

- To improve the cooperation among sectors and businesses in cross-border area thus improving the local economies and boosting entrepreneurship;
- To support the local economies by safeguarding raw materials or fuel coming from bio-waste;
- To promote job creation in the regions into question by exploring the trade opportunities and using the waste as a resource.

Project partners

PARTNERS	PARTNER TITLE	COUNTRY
LB	Public Enterprise KOMUNALEC Bitola	Republic of North Macedonia
PP2	Waste Management of Western Macedonia DIADYMA SA	Greece
PP3	Public Enterprise for communal works KOMUNALNA HIGIENA Novaci	Republic of North Macedonia
PP4	INNOPOLIS - Centre for Innovation and Culture	Greece
PP5	Movement for Environment MOLIKA DOM Bitola	Republic of North Macedonia
PP6	NTUA (National Technical University in Athens)	Greece

Actions

Greek area partners

DIADYMA have already made the procurement of equipment in January 2019. Equipment contains a Green Shredder for green waste and 200 green bins for biowaste of 660 lt capacity. In the current period realized the opening and the monitoring of the files of each project separately in accordance with Greek law and the contractor was selected. Green Shredder is a machine that will be used for chipping branches, vegetable residues, etc. in order to reduce their volume. The engine will be towed and mounted on a new; single-axle wheel frame. The shredder will be mobile in order to cover the needs of the municipalities Amyntaio, Prespes & Florina. It will be parked in the Transfer Station of Florina and will be transported, when maintaining of green waste are carried out (at parks, Squares etc), so as to reduce the volume of green waste that will be transferred to the station. Also in the dissemination hub, helpful articles were published in order to communicate information to

local stakeholders and public([link: https://symbiosisproject.eu/bio-fertilisers-and-industrial-symbiosis/](https://symbiosisproject.eu/bio-fertilisers-and-industrial-symbiosis/), <https://symbiosisproject.eu/development-of-dissemination-hub/> and <https://symbiosisproject.eu/secondary-raw-materials-through-industrial-symbiosis/>). In the current period DIADYMA also prepared the questionnaire that will be given to the local stakeholders in order to fill it and the information will be used within the symbiosis platform (link: <https://symbiosisproject.eu/the-questionnaire-for-the-enterprises/>).

Republic of North Macedonia area partners

P.E. Komunalna Higijena – Novaci, until now signed 5 contracts with companies for collection the bio-waste. Companies are required to select bio-waste and use the waste bin they receive free of charge, exclusively for bio-waste collection. They are companies like grocery store, restaurants etc. The second part of the project activities was devoted, to procurement and installation of composting equipment. It was purchased:

- A bio-composter (container) of 6 m3 with bin lifter and shredder.
- A specialized vehicle (truck) of 12 m3 for collecting biowaste.
- Biowaste bins 120L x 2000 pcs
- Biowaste bins 240L x 200 pcs
- Biowaste bins 1,1m3 x35 pcs.

The equipment is installed and operational, thus the chain of separate collection of organic waste, its treatment and reusing have started at PE Komunalec Bitola. The produced compost is used at own facilities for seedling production, and for maintaining of green areas in the Municipality Bitola. PE Komunalec concluded contracts with ten biowaste producers from the Municipality Bitola. Thus the industrial symbiosis process of biowaste in the target CBC area of North Macedonia has started.