

# Interreg Greece-Bulgaria

European Regional Development Fund



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## COOPERATION PROGRAMME INTERREG V-A "GREECE - BULGARIA 2014 – 2020"

PROJECT BENEFICIARY: **MUNICIPALITY OF NESTOS**

PROJECT: **"Green" employment in the management of biowastes (GREEN\_CREW)**



### DELIVERABLE 4.3.1: Social cooperative enterprize enrolment

Παραδοτέο 2.3 (Π2.3): Ενδιάμεση έκθεση αναφοράς για την πιλοτική λειτουργία της ανοιχτής μονάδας κομποστοποίησης (el)

Deliverable 2.3 (D2.3): Interim Report on the pilot operation of the open composting unit (en)

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Το Έργο συγχρηματοδοτείται από το Ευρωπαϊκό Ταμείο Περιφερειακής Ανάπτυξης και από εθνικούς πόρους των χωρών που συμμετέχουν στο Πρόγραμμα Συνεργασίας Interreg V-A «Ελλάδα-Βουλγαρία 2014-2020

#### **DELIVERABLE 4.3.1: Social cooperative enterprise enrolment**

**Παραδοτέο 2.3 (Π2.3): Ενδιάμεση έκθεση αναφοράς για την πιλοτική λειτουργία της ανοιχτής μονάδας κομποστοποίησης**

**Deliverable 2.3 (D2.3): Interim Report on the pilot operation of the open composting unit**

#### **ABSTRACT:**

The Deliverable 2.3 (D2.3) Interim Report on the pilot operation of the open composting unit, which was prepared in July 2020, consists of 4 sections. The first section presents the available current Internet of Things (IoT) technologies that can be used in the field of biowaste collection and processing, with possible benefits in reducing the cost of bio-waste transportation, more efficient management of composting processes, and time management. The second section analyzes the development of support tools for taking the business initiative of Social Cooperative Enterprise (SCE) for the operation of the pilot open composting unit in order to implement its business plan of collection, treatment of biowaste, and implementation of the final produced compost in an efficient way. These tools, in which the local operators were trained, consisted of protocols and applications for the data collection of location, volume, availability, type of biowaste in parcels of the Municipality of the Nestos, control of composting parameters, and optimal collection vehicle routes through the use of field toolbox. The third section analyzes the methodology and the development of a composting protocol as a support tool of Social Cooperative Enterprise (SCE), but also as a guide for the Municipality of the Nestos and other bodies, after the end of the Green Crew project. In the fourth section, the analysis of the operation of the pilot composting unit is performed. After the completion of the design of the pilot composting unit and the development of the support tools, in the Municipality of Nestos, within the framework of the "Green Crew" project, began the implementation of the design for the operation of the pilot unit. The selected area (Agiasma farm), was properly designed by crews of the Municipality of the Nestos with the appropriate instructions of the contractor. The stages and procedures of the pilot composting unit are distinguished in collection-pre-processing, parameter control to achieve the basic characterization of the properties of the produced compost but also to optimize the composting parameters. The measurements were made both initially on the collected biowaste after their shredding and in the course of the composting process by taking a sample from different parts of the piles. The parameters were checked throughout the composting, in the ISO 17025 accredited chemical laboratory of i-BEC, and with measurements using the field toolbox of SCE. Extensive study of the chemical composition and other physicochemical characteristics of initial samples of biomass and related composts was carried out in the chemical laboratory of the Department of Chemistry of AUTH (partner of the Green Crew project). The duration of the composting was 8 months and during this period, its parameters were checked, and adjusted, when necessary, by the contractor's staff. Two measurements



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were performed (at the beginning of composting - and during composting) in 3 different samples, which were taken from different positions of the series with a constant weight of each sample at 300 gr. At the end of the composting, a final measurement will be made on the final product (compost) and a pilot application of the produced product will follow in 2 types of soils and crops, as well as evaluation of the results and performance of its application both in the laboratory and on-site with the use of the field toolbox.