

On Site Treatment of Food Waste through Mechanical Composting Units: A Techno-economical Evaluation

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Through three different funding schemes more than 25 Mechanical Composting Units were developed in various cities in Greece Cyprus and Republic of North Macedonia aiming in treating food wastes from various sources, such as hotels, restaurants, hospitals, students' hall, catering units and parks. The latter was aiming to serve single households neighboring the respective parks. Two companies supplied the units, 6 from Big Hanna, Swedish based and 21 from IINCOTECH, a Greek SME. The capacity range as t / year was 16 to 124 for the Big Hanna units and 14 to 110 for the Incotech Units. The average cost of the units provided was 42.000 € / unit and 1.200 € / annual treating t. However, that cost includes some structures related with safety, accessibility, data recording and maturation of the produced compost, which were absolutely necessary for the operation of the units, resulting to different costs than those provided by the companies for their units.

From these units eight were established in 2022 in eight different parks in the city of Heraklion the main city of the Island of Crete. At this moment more than 250 households are involved in the respective operation and the number will probably increase by the end of 2022 and the establishment of a pay as you throw system in the respective Municipality. Based in the operation of these units, costs and efficiency estimations were made and comparisons were made to the existing and established operational system of bio-wastes / mixed wastes collection treatment and disposal.

According to these findings the efficiency of the units regarding the quality of the produced compost was considered as adequate, with the largest problem that of the use of plastic bags. As far as the operational cost, it became obvious that these systems have a lower operational cost than any alternative centralized process, due to the elimination of the collection cost.