CIrClE 2019

Challenges for the Islands in the era of the Circular Economy

Interreg Ελλάδα-Κύπρος
Ευρωπαϊκό Ταμείο Περιφερειακής Ανάπτυξης
ΕΥΡΩΠΑΪΚΗ ΕΝΩΣΗ
BIOMA

Decentralized management of Bio-waste and simultaneous exploitation of their end products using alternative and innovative systems

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Under the auspices of ENV MOVE

Cyprus University of Technology

CERTH CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

Naxos Municipality of Naxos and Small Cyclades

DEPARTMENT OF ENVIRONMENT

ΚΟΙΝΟΤΙΚΟ ΣΥΜΒΟΥΛΙΟ ΠΑΛΩΔΙΑΣ
THE COMMUNITY COUNCIL OF PALODIA

SMile 2019

6th Sustainable Mobility & Intelligent Transport conference

General Objective

Reduction of domestic waste produced by decentralized areas and their direct use for energy production

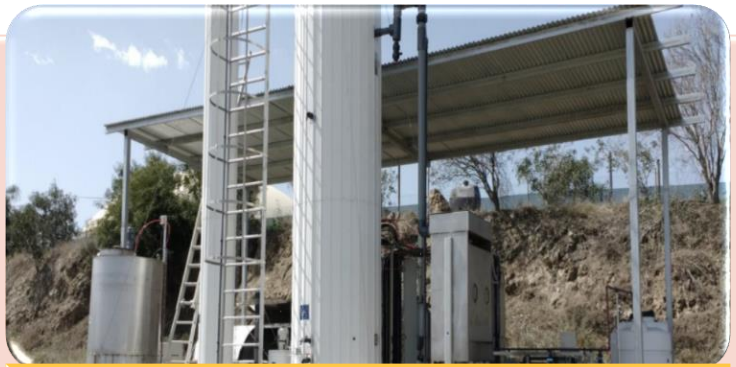
Specific objectives

- Examine qualitative and quantitative characteristics of organic waste and existing management practices
- Installation of the proposed domestic drying bins in the selected households
- Evaluation of the proposed systems & benchmarking their efficiency
- Evaluation of the end products produced (pellets, biogas, digestated)
- Propose best practice guidelines based on project's end products
- Implementation of developed best practices
- Inform and educate various groups of interest

Process Diagram - BIOMA

Sorting at the source (pilot installation of the domestic drying bin)

Collection and transfer at the Pilot Plant



Treatment for energy production and other useful products

DOMESTIC DRYING BIN

- Dimensions: 27 x 30 x 35 cm
- 240V, 50Hz
- Consumption: 4€/month
- Odors: Double active carbon filter
- Easily operational
- Maximum capacity: 1kg
- Drying time: 3-4 hours

DOMESTIC DRYING BIN

- Shredder (up to chicken bones can be added)
- Drying in 3 stages (automatically): Shredding, heating, cooling
- Weight/volume reduction appx 80-90%
- Drying using hot air (60^{o}C)

DOMESTIC DRYING BIN

Double activated carbon filters for odor removal

DOMESTIC DRYING BIN

Household/domestic waste bin

Hot airflow holes (drying)

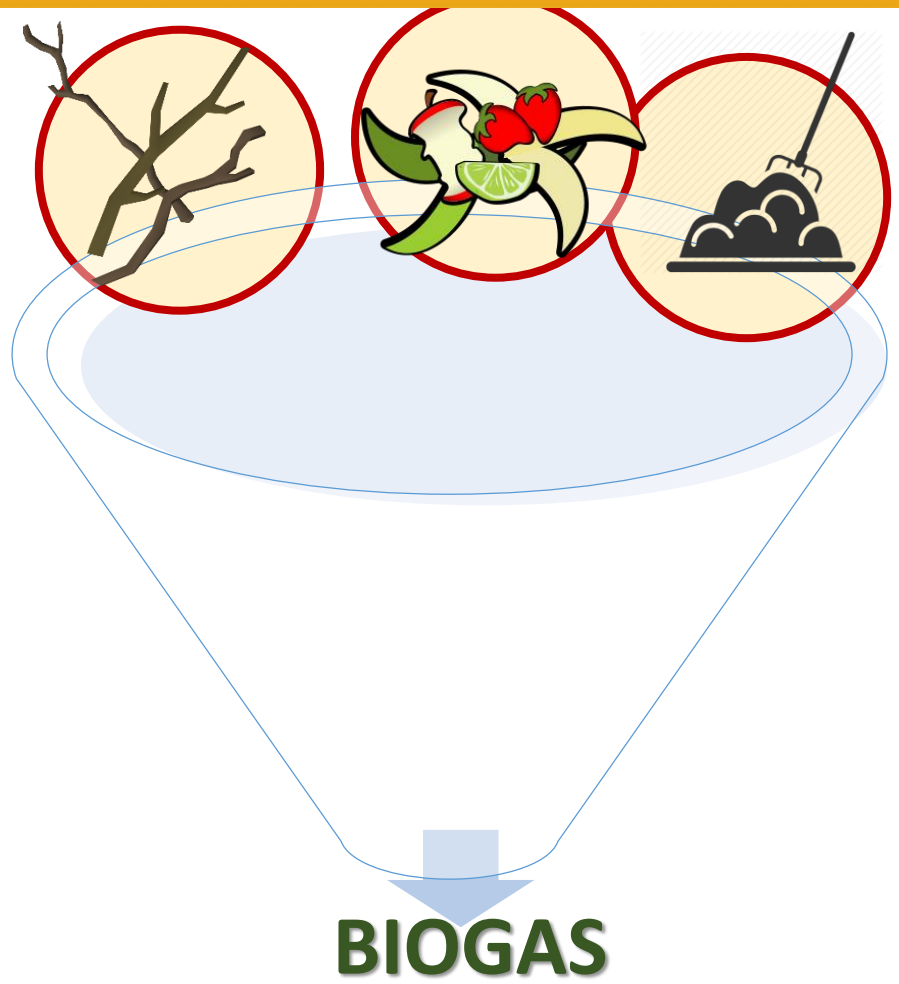
Residue after drying

RESIDUE TRANSFER

The residue will be placed in special container bags and will be collected by the community on specified days. When sufficient quantity will be collected the residue will be transferred to a specific AD plant for the biogas production (Cyprus).

Scenario A

Co-utilization of treated household waste, green/agricultural waste and livestock waste in an AD



End products:

- Biogas (energy)
- Clean water
- Fertilizer
- Compost

Utilization of dry household biowaste towards biogas production

Innovative integrated prototype system that has been developed within project LIVEWASTE (completed)

Main sub-units of the integrated system:

- the anaerobic digester
- the composting unit
- the odour abatement system
- the SBR and the struvite crystallization unit
- the integrated prototype system

Installed Prototype System

Biotrickling filter

Biofilter

Compost unit

Pilot plant operating in Cyprus

SCR

Anaerobic digester

SBR

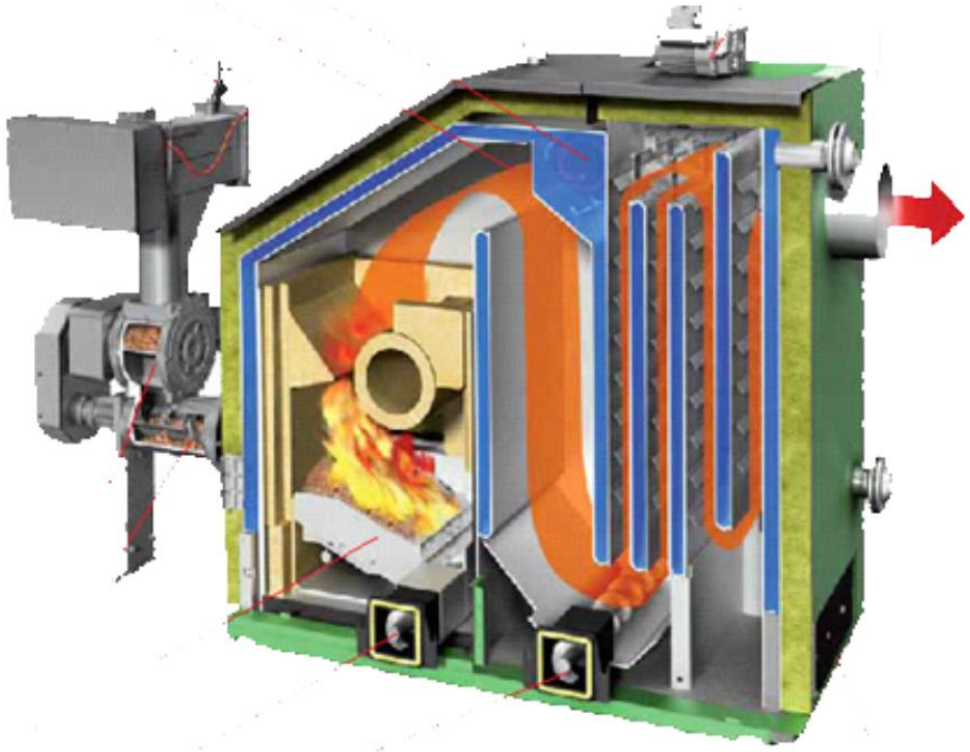
Filter bags

Ceramic membrane

LIVEWASTE

Scenario B

Co-utilization of dry household waste with green waste to produce combustible wood-chips



ADDITIONAL OUTPUTS

- Evaluation of the proposed systems & benchmarking their efficiency
- Evaluation of the end products produced (pellets, biogas, digestated)
- Propose best practice guidelines based on produced end products
- Implementation of developed best practices

EDUCATION – INFORMATION - DISSIMINATION

An information booth will be installed at the communities, in order to inform and help the citizens.

Staff from the communities will be trained in order to be able to maintain the equipment installed.

The project is contacted for the first time both in Cyprus and Greece and exposure to the wider regions of the communities is expected to be great.

Info days and workshops by the competent authorities at the communities and press releases and presentations at international conferences.

Thank you for your attention

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Thursday **28** - Friday **29 March** 2019, Nicosia, Cyprus

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