

N.O.W.A.S.T.E. – New Organic Waste Treatment Engine

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The N.O.W.A.S.T.E. project (LIFE09 ENV/IT/000070) aims to develop and test a new waste management system using an innovative home appliance for the anaerobic treatment and composting of bio-waste. www.lifenowaste.eu

The main goal is to demonstrate that organic waste can become high-quality compost and more quickly than traditional processes. Our project proposes an innovative treatment at source by households thanks to the use of the NOWASTE prototype, an anaerobic kitchen composter. This treatment can drastically reduce MSW collection and transportation costs, leading to great advantages in terms of economic and environmental benefits. The NOWASTE treatment allows a huge volume reduction of the biowaste and it eliminates bad odors, consequently it is possible to modify the frequency of biowaste collection from 3 times a week to once every 10-15 days.

Main objectives

- Reduction of emissions related to the transport of waste
- Elimination of biowaste disposal in landfill
- High quality compost production
- Positive impact about the use of compost as a natural fertilizer in agriculture and promotion of actions for soil protection

Transferability: development of a standard model. The project aims to promote the development of a waste sustainable policy for local administrators, through the implementation of a system/method which will first of all be a normative model for some pilot areas in order to become a reference point for the implementation of waste management territorial plans and for the promotion of domestic organic waste treatment methodologies. Moreover, to show the full transferability of the project in different urban and rural contexts and to analyze and overcome any possible difficulty, the prototype experimentation will take place in three municipalities of the Sicilian region: a rural community, a tourist village and an industrial centre.

Coordinating beneficiary

I.R.S.S.A.T. - Institute for Research, Development and Experimentation on Environment and Territory - is an Association operating in the non-profit sector with the intent of participating at the territorial re-qualification through the use of renewable energies.

Recently, the group obtained a patent for the invention of the NOWASTE prototype "anaerobic kitchen composter "

Associated beneficiaries

Regione Siciliana - Environment Regional Department, Regional Department for Water and Waste

D.E.I. - University of Catania, Department of Economics and enterprise

Comune di Gaggi - It's a rural community member of the Alcantara Fluvial Regional Park 2,693 Inhabitants - about 1.033 families

Comune di Castelmola - It's one of the most beautiful villages in Italy, a natural balcony above Taormina - 1,082 Inhabitants - about 457 families

Comune di Melilli - It's a metropolitan industrial community part of a petrochemical industrial pole near Syracuse (Melilli – Augusta - Priolo Gargallo) - 12,216 inhabitants - about 4,146 families

BIO.MEDI s.r.l. - Small enterprise operating in waste and composting sector

The project is currently in the third year of operation and it is gradually engaging about a thousand Sicilian families who are directly involved in experimental activities. A large part of the project is dedicated to the dissemination of the results and activities of information and public awareness (events, promotion of recycling of all types of waste, participation to the European Week for Waste Reduction, involvement of schools and universities) and public administrations (training activities and meetings of the Regional Network NOWASTE, which have already joined 20 municipalities in Sicily).

The prototype is a very innovative electrical appliance and it obtained the patent in 2013. It can be installed in the apartments, the ideal is to place it in the kitchen next to the sink or the dishwasher, so that its use can become a simple everyday habit. Its reduced size (30 cm front panel, 60 cm deep and 80 cm high), less than half of a dishwasher, allows integration with any modular kitchen like a domestic appliance. It is expected to create a built-in model.

From 2012, the use on an experimental basis in the municipalities of Gaggi, Castelmola and Melilli, has provided interesting early feedbacks on ease of use, the absence of significant impacts in housing (odors, attractiveness to insects or other animals) and, in general, the good disposition of the population to a systematic use of the prototype. The prototype performs an innovative automatic treatment that reduces by more than 70% of the volume of the organic fraction that is chopped and mixed with special enzymes, which accelerate the process of anaerobic fermentation while blocking the formation of unpleasant odors. This treatment allows the preservation of the organic fraction in the houses up to 15 days without problems.



[Click to see the video](#)

Next developments: biogas/energy/compost.

In case of a project replication on a large scale, we think that our project could open up new market opportunities for companies that produce electrical appliances.

To extend the system we aim to cooperate with Energy Service Companies and Waste companies.

This consortium should provide composters and build the plants (local micro-anaerobic digesters and small composting center). Partners could collect biowaste from households and enhance it to produce electricity and thermal energy. At the end of this process it is expected to produce and commercialize bio-liquid fertilizer and high quality compost.

The NOWASTE treatment determines a higher yield in terms of biogas production. This performance is comparable to that of the 1st phase of treatment in the double stage digesters (whose realization is much more expensive). Moreover our treatment allows a 30-40% reduction of times for production of high-quality compost. Moreover, cooperation with other projects related to waste sorting could be very important to redesign all together a new model of sustainable waste management and to promote complementary circular economy circuits for all types of waste. Surely the separation of food waste at source in households improves the quality of dry waste recovery.

Citizens could benefit from a 60% cost reduction related to transport and collection of biowaste.

This system would be particularly advantageous in the smaller islands:

- Zero cost of carriage by sea
- Zero cost for compost disposal
- Local production and sale of compost and energy
- Promotion of actions to combat desertification

Our main target audience:

- Local Authorities / Public Administrations
- Policy makers, Citizens, associations, farmers
- Renewable energy companies and ESCOs
- Waste management Companies