

THEMATIC ANALYSIS IN THE FIELD OF BIOWASTE IN (Ciudad Real, España)

INVENTORY OF EXPORTABLE GOOD PRACTICES
&
INVENTORY OF SITES, FACILITIES, AREAS, AND INSTRUMENTS
TO BE IMPROVED DURING THE COOPERATION



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INDEX

1. Introduction.....	3
2. Regional Context	5
3. Inventory of Good Practices to be shared during the cooperation	6
4. Inventory of Sites, Facilities, Areas and Instruments to be Improved	15
5. Conclusions	19

1. Introduction

General context

Biowaste comprises biodegradable garden and park waste, food waste from households, offices, restaurants, canteens and retails as well as waste from food processing plants.

Composting (treatment in the presence of oxygen) leads to soil improvers; anaerobic digestion (treatment in absence of oxygen) to biogas¹.

Across the EU, between 118-138 million tons of biowaste are generated annually; of them, only 40% is recycled into quality compost and digestate.

Moreover, up to 50% of municipal solid waste - on average - is organic, so this fraction seems central for the circular economy.

In the case of rural environments with low-density population, the management of the organic fraction is environmentally and economically impactful, since a contaminating and expensive process is required to collect, transport and treat small amounts of organic waste dispersed in distant and sparsely populated villages.

¹ Even if the project literature uses the word “composting” by default, CORE project addresses both composting and anaerobic digestion and also prevention and separation in rural areas, as steps conditioning the process. However, for the sake of simplification the word “composting” is used in a generic way, representing all of them though in practical terms.

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Prevention of biowaste and the normalization of quality composting could contribute to the drastic reduction of this fraction and of the effects derived from its management. The product obtained can be used as soil-improving material and fertilizer in local and regional parks and gardens or in the form of biogas, while further uses could be promoted.

Despite the fact that regional and local policies in force all over Europe observe the transition of the waste management sector towards a circular economy, the treatment of biowaste is often not sufficiently developed, notwithstanding its potential to comply not only with circular economy but also with the mitigation of climate change.

The project rationale

In the frame described, the Interreg Europe project CORE – Composting in Rural Environments - intends to be an accelerator for rural territories to develop *composting* further.

The project brings together regional and local administrations with competences on biowaste management from 8 rural regions from all over Europe, which are accompanied and supported in the project by the European Compost Network (ECN), in the role of advisory partner.

For 4 years, the partners will export and import experiences on biowaste treatment, with the expected result of new projects and improved policies with regard to biowaste in all the partner territories.

The purpose of the Thematic Analyses projected

Interreg Europe is a programme for exchange of experiences and policy improvement. In line with it, the “studies/analyses” authorized for financing have not a research or scientific purpose, as this is not the programme rationale.

The goal of “studies/analyses” in an Interreg Europe context has to be them to contribute to and to facilitate the process of exchange of experiences and policy and territorial improvements.

Accordingly, the Thematic Analyses authorized in CORE must serve for each partner territory to prepare, during semester 1, the 4 years of cooperation to come, defining in advance – in the form of a roadmap – (I) what local experiences will be shared with the partners during the years to come and (II) what local resources could be further developed/ improved thanks to the knowledge gained during the cooperation. This information will be systematized in the form of inventories.

These inventories won't be immovable, as during the project new exportable experiences and new areas for improvement can emerge; but the purpose is each partner territory making, from the very beginning, an exercise of self-reflection useful to plan their part in the cooperation and the benefits they could obtain out of it, listing a good number of experiences to be shared and a series of local gaps that hopefully could be fulfilled thanks to the experience gained in the project.

The following pages offer a template model to inventory such information.

The Thematic Analyses are conceived to be useful for each partner producing them, as they are setting up the milestones for partner during the cooperation: what will be provided, what is expected

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to be improved. They should be roadmaps for the different project teams, serving as reference documents throughout the project. Despite their primarily local interest, they will be uploaded in the CORE webpage “Library” section as a proof of the work done and as possible inspiration for others.

It is possible that in order to obtain the information required – inventories of practices and improvement areas - different means are needed, such as meetings with different local actors, interviews, surveys, revision of documents. If needed, they are valid in the way that they contribute to the fulfilment of the inventories requested.

Last, but not least, mentioning that stakeholders can play a central role in this exercise of self-reflection and planning. Involve them!

2. Regional Context

[Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste](#) is extrapolated to the national level la [Ley 7/2022, de 8 de abril, de residuos y suelos contaminados para una economía circular](#), which requires a series of objectives:

- In 2020, a weight reduction of 10% must be achieved, in 2025, 13% and in 2030, 15% of the waste generated in that year compared to that generated in 2010.
- Facilitate the preparation for reuse and high-quality recycling of bio-waste of domestic origin before June 30, 2022 for local entities with a population of more than 5,000 inhabitants, and before December 31, 2023 for the rest. Separate collection of bio-waste will also be understood as separation and recycling at source through domestic or community composting.
- 50% reduction in food waste per capita at the retail and consumer level and a 20% reduction in food losses along production and supply chains by 2030.
- By 2035, the percentage of municipal waste collected separately will be at least 50% by weight of the total municipal waste generated.
- Its obligatory minimum objective is the prevention and reduction of waste generation, as well as separate collection, preparation for reuse, recycling and other forms of recovery of certain types of waste.

At the regional level, a [Waste Prevention and Management Plan](#) has been drawn up in Castilla - La Mancha (2023 - 2030) to address the objectives established by the previous law.

RSUSA's trajectory in terms of decentralized composting begins in 2018, through the self-composting of the biowaste generated in the ADIN occupational center. The students of the center themselves oversee the contributions of bio-waste to the compost bins and monitor the parameters during the composting process in the different stages.

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In 2019, the Plan de Impulso al Medio Ambiente (PIMA I) was carried out to develop a community composting project in 10 municipalities (6,068 inhabitants in total) of rural category and with very low population density, bordering the National Park of Cabañeros. The contribution of biowaste was made by each family unit through 10-liter brown buckets. In the initial study, a total amount of 200,000 kg of biowaste/year is estimated, which is transformed into 70,000 kg of compost.

The following year, in 2020, Plan de Impulso al Medio Ambiente (PIMA II) is carried out to develop a community composting project in the hamlet of Consolación, in the urban orchard of the municipality of Valdepeñas and in the high school of the municipality of Miguelturra (IES Campo de Calatrava). The contribution of bio-waste is made by the students of the high school, the cooks of the cafeteria and the gardeners of the urban orchard through 10-litre brown buckets.

In 2021, the selective collection of the organic fraction was implemented using side-loading brown containers in half of the municipality of Ciudad Real, through two circuits, which covered 8 different neighborhoods.

Finally, in 2022 the NEXT GENERATION project is requested to carry out community composting in 4 regions of the province of Ciudad Real, affecting 44 municipalities and a total of about 32,000 inhabitants. It is estimated that approximately 40% of the waste that is currently collected from the organic fraction is collected in the remainder container. Per inhabitant there are 380 kg/inhab-year, so 4,860 tons of biowaste will be collected and approximately 33% of compost will be obtained from the weight of biowaste processed in compost bins. This project is in the planning and implementation phase.

3. Inventory of Good Practices to be shared during the cooperation²

Below, is a classification of good practices:

- 1. Good practices implemented**
- 2. Good practices in development**
- 3. Good practices ideas**

² If needed, more tables can be added; equally, those not needed can be deleted.

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1. Local Good Practices on Community Composting

Title: Close Loop Garden in Occupational Centre

Location of the practice:
Villanueva de los Infantes

Short summary: The students of the centre themselves oversee the contributions of bio-waste to the compost bins and monitor the parameters during the composting process in the different stages. The compost obtained is used to make substrates in the seedbeds and fertilize the plants that produce.

Responsible organization: RSU and Occupational Centre ADIN



1. Local Good Practices on Smart Composting in Rural Areas

Title: Smart Community Composting

Location of the practice:
Territorial area of RSU where community composting is carried out.

Short summary:
Monitoring of the parameters used in the composting process (temperature, humidity, smell, time, etc.) and other data (location, fill level) to comply with the requirements established by current legislation.

Responsible organization:
RSUSA and MOVISAT



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2. Local Good Practices on Training in Master Composter

Title: Master Composter

Location of the practice:
Territorial area of RSU where community composting is carried out.

Short summary:
The creation of an official training program at national level in composting at local scale (household, community and small facilities) that could be recognized and validated by all the local administrations. So that the entity itself can have master composters trained to self-manage bio-waste through composting.

Responsible organization:
RSUSA and Composta en Red



2. Local Good Practices to Increase the Environmental Commitment

Title: Environmental Commitment Stamp

Location of the practice:
Territorial area of RSU where community and scholar composting are carried out.

Short summary:
The "Environmental Commitment" stamp is granted if a series of requirements are met, with the aim of recognizing its involvement in the separation of the organic fraction, composting and soil regeneration. In this way, motivate the prevention of bio-waste.

Responsible organization:
RSUSA



3. Local Good Practices on Home Composting

Title: Home Composting

Location of the practice:

Territorial area of RSU with a population of less than 5000 inhabitants or municipalities with a larger population with an interest in home composting.

Short summary:

The objective is encouraging home composting in those households that have spaciousness (patio, garden, or terrace) and can use the compost obtained from their plants. For smaller homes, it is planned to encourage vermicomposting.

Responsible organization: RSUSA and Municipalities

3. Local Good Practices on Improve Communication Channels

Title: Communication about composting

Location of the practice:

Territorial area of RSU

Short summary:

Increase information about community and domestic composting through the RSU educational website (<https://ciudadrealmedioambiente.es/>), letters to residents of the municipalities, leaflets, posters, concours, games and environmental education activities.

Responsible organization: RSUSA

CORE

3. Local Good Practices to Create Audiovisual Resources

Title: Composting Audiovisual Resources

Location of the practice:
Territorial area of RSU

Short summary:

Creation of video tutorials, guides, and manuals to be posted on the web and anyone can download them to learn about composting. Teachers will also be invited to use them as an environmental education tool in schools.

Responsible organization: RSUSA

3. Local Good Practices to Create Demonstrative Compost bin

Title: Demonstrative Compost Bin

Location of the practice:
In a Ciudad Real park

Short summary:

Select a location in Ciudad Real (park, garden) with a neighbourhood and restaurants nearby to deposit your biowaste. Although the 5th container has been implemented in Ciudad Real, this good practice is interesting to make composting known to the population, create an environmental education tool and produce compost in the area where bio-waste is generated.

Responsible organization: RSUSA and Municipality of Ciudad Real

3. Local Good Practices Automated Composting

Title: Automated Composting Treatment in the Sierra de Cádiz

Location of the practice: Sierra de Cádiz

Short summary:

Community composting using a machine that automates the composting process in certain rural municipalities of the Sierra de Cádiz.

Responsible organization: Junta de Andalucía.

4. Inventory of sites, facilities, areas and instruments to be improved thanks to the cooperation

Local Resources to be improved thanks to the cooperation.

Name: Community Composting

Type of resource: Composting area

Short description of the need for improvement:

In a municipality (Fontanarejo) with a population of less than 300 inhabitants and around the Cabañeros National Park, has been detected a very low contribution of bio-waste in the community composting bins.

For this reason, it is proposed to carry out some surveys in the municipality to determine the causes of so little citizen participation in community composting.

Responsible organization: Municipality of Fontanarejo and RSUSA

Local Resources to be improved thanks to the cooperation.

Name: Scholar Composting

Type of resource: Composting area

Short description of the need for improvement:

In certain schools and institutes where scholar composting is carried out, there are incidents during the composting process (dry, poorly structured, flies) or little follow-up from one year to the next, due to teacher turnover.

For this reason, we consider that it is interesting to make audiovisual material teaching the methodology and the technical part of composting, so that the teaching centre can carry out correct composting.

Responsible organization: Scholar institution and RSUSA

5. Conclusions

RSUSA was initiated the experience the decentralized composting in 2018, through the self-composting of the biowaste generated in the ADIN occupational center. The produced compost is used in the grown of greenhouse, orchard, and garden at the occupational center.

Two years later, was carried out to develop a community composting project in 10 municipalities with very low rural population located around the National Park of Cabañeros.

Currently, school composting is also being carried out in various primary and secondary education centers that have a dining room and garden, where it is possible to carry out the close loop garden.

About the experience to be member of CORE project we are getting learnings and tools that is help us to know how to:

- Raise awareness among the population through communication and environmental education tools.
- Increase citizen engagement in separation and composting of the organic waste of the garbage bag.
- Training properly of master composter.
- Start processes to obtain environmental sustainability stamp.
- Transmit the knowledge and experiences acquired to stakeholders.

One of RSUSA´s objectives after start the CORE project is develop in several lines:

- Training properly of master composter responsible for the community composters in the municipalities through Composta en Red or technicians of RSUSA.
- Expand community composting in small population municipalities, rural villages, education centers, and hostelry.
- Consolidate the environmental commitment stamp as a sign of engagement of groups and entities.
- Reduce the quantity of inappropriate materials present in community composters, improve the quality of the organic matter provided and meet the standards to comply with current legislation.
- Improve monitoring and obtaining citizen data used by composters for the correct functioning through application of Eco compostaje (Smartwaste).
- Try to involve actors to achieve adequate management of organic matter in rural environments.
- Show our experience and knowledge to public companies members of ANEPMA association that manage organic waste.