

# THE STORY OF PONTEVEDRA

## CASE STUDY

# #13

Thanks to decentralised composting the province of Pontevedra went from providing no options for bio-waste to a comprehensive and community-based system. After 3 years, already more than 2,000 tonnes of biowaste were locally composted and the project rolled-out in more than two-third of the province's municipalities. Spain is still lagging behind regarding broader EU waste management objectives, but the story of Pontevedra proves that good results can easily be achieved with low-key and cost efficient measures.



## INTRODUCTION

Today, the concept of a circular economy is becoming ever more present in European societies and with this, there is increasing recognition regarding the crucial role that composting of biowaste can play in closing the material and resource loop within our economies. Much of the progress that is being made on this topic throughout Europe has not reached Spain yet. The country still lags behind due to the fact that much of its bio-waste is still incinerated or sent to landfill rather than returned to the soil.

The province of Pontevedra sits within Galicia, a large geographical region of sparsely populated towns and villages that account for only 2% of the Spanish population. In 2017, only 9% of the waste in Pontevedra was separately collected, leaving the remaining 91% to be transported more than 100 kilometres away to be either burned (70%) or landfilled (20%) in A Coruña<sup>1</sup>.

To shift from this unsustainable, centralised and expensive waste management system, the province of Pontevedra launched a project named "Revitaliza"<sup>2</sup> to build a decentralised composting system

in the region. Taking into account that of the 348 kilograms of waste produced by inhabitants each year, 53% to 55% is biowaste (45% being food scraps and 8 to 11% being garden waste), **the project was therefore designed to set-up a sustainable, local and cost-efficient management system for bio-waste.**

After 3 years, the Revitaliza project in the province of Pontevedra offers a tangible and successful example of how to effectively implement a decentralised bio-waste management system. Not only does this system allow the municipality to move away from expensive and harmful waste treatment options that currently exist across most European societies, but it also provides real, impactful benefits for the environment and local community.

## HOW IT ALL STARTED

In 2015, in order to comply with EU recycling obligations and to provide an adapted bio-waste management system for the Province, Pontevedra started "Revitaliza" with the aim of diverting the organic waste stream away from simply being disposed.

The objective was not only to shift away from burning or landfilling and towards composting instead, but it was designed to create a decentralised, community-led system of bio-waste management. In the long term this has resulted in a more cost-effective and environmentally friendly system that directly benefits the local community.

The province of Pontevedra is composed of 61 municipalities with an approximate population of 960,000, of which 50% live in rural areas. Currently the project is being deployed in 60 out of the 61 municipalities in Pontevedra, with the biggest city in the province not included due to the fact that the 300,000 residents live within a densely populated area, in vast contrast to the rest of the region. Among the 60 municipalities for which "Revitaliza" was intended for, 44 have now joined the process.

"It doesn't make sense to have a centralised waste management system for a decentralised area"

Carlos Pérez Losada,  
Technical Director of Revitaliza

<sup>1</sup> Source <https://revitaliza.depo.gal/>

<sup>2</sup>"Revitalizar" means revitalising. By producing compost to enrich impoverished soils, REVITALIZA aims at revitalising soils.

Type of area	Scattered	Less than 100 people	Between 100 and 1000 people	More than 1000 people	Total
Number of inhabitants living in that type of area	209,918	69,175	197,732	484,179	961,004
% of the global population living in that type of area	21.80	7.20	20.60	50.40	100
Number of inhabitants per area	12.00	47.30	252.90	7,226.60	7,538.80
Number of areas	17,493	1,462	782	67	19,804

Table 1: Breakout of Pontevedra's population according to the density.

## HOW DOES IT WORK

Revitaliza fully relies on a decentralised composting system to treat bio-waste, composed of 3 key factors:

- A balanced input of materials that ensure a proper composting process can take place.
- A suitable location for the com-posting process to be conducted at, which has to be adapted to the area's specific needs and context.
- The design and implementation of an effective monitoring system to ensure the success of the process, by identifying and solving issues that arise throughout the implementation phase.

### The composting process

A good composting process relies on a mix of carbon material, such as garden waste, and nitrogen material, such as food scraps. As kitchen waste makes up the majority of waste in households, restaurants and hotels, it is a material to which everybody can access easily.

However, since not everybody lives in a household with a garden, all residents cannot be expected to have access to home composters. Therefore in Pontevedra, to ensure a good composting process, the Revitaliza project established garden waste sites for citizens to bring their garden waste surplus.

This carbon material is then distributed to residents throughout the region.

### The composting options

Three composting options are offered to the region's inhabitants depending on the density of the area:

- 1. Individual composting (COIN):**  
This consists of home composters for households with enough space to host them. They are distributed to households in scattered areas with a population size between 100 and 1,000 inhabitants.
- 2. Community composting (CCC):**  
These are made of composting boxes (called UMC) and a community will have access to either 3, 5, 6 or 10 composting boxes together in one location, depending on the community's size, to ensure sufficient space for a proper composting process to take place. Community composting sites are set up in densely populated areas (between 100 and 1,000 people, or beyond 1,000).
- 3. Local Composting Plants (PCC):**  
For areas too densely populated for home com-posting or community composting, small scaled composting plants have been established to treat biowaste. Those plants are limited by two factors: no more

than 2.000 tonnes per year and less than 45 km from bio-waste producers.

### Data collection process

The project was designed to ensure that more than 75% of the inhabitants will be covered by a decentralised composting process, either through systems at home or in their local community. Therefore, an efficient monitoring and data collection process was needed, since the system was not going to be managed by professional technicians but rather by individual citizens and communities.

In Pontevedra, specific monitoring and data collection processes were established for both community and home composting to address the different specifics of each system.

For community composting, professionals from Revitaliza are in charge of common tasks such as watering the compost if it becomes too dry, mixing kitchen and garden waste together or sieving the compost once it has matured. Besides those basic tasks, further data is collected on the filling level, the temperature of composting sites or even on potential incidents that are likely to happen, such as bad smells, larvae or rodents.

Type of composting option	Quantity	Number of Inhabitants	%
COIN	92,012	363,524	37.83
CCC	2,896	367,852	38.28
PCC	6	172,402	23.14
Other		7,251	0.75
<b>Total</b>		<b>911,029</b>	<b>100.00</b>

Table 2: Number of composting options per inhabitants.



To ensure that an effective data collection and database is created, master composters collecting this information now use a smartphone app. When the master composter checks a community composting site and inputs the data in the app, the app uses its geolocation to define which site is being analysed. Once all the information has been added to the app, it connects automatically to a web platform where the data is stored. **Frequent data collection then allows for regular comparisons to be made regarding the composting quality and the calculations of volume of bio-waste treated every year.**

For home composting the process is almost the same. Once the household receives the home composter, workers from Revitaliza provide explanations on how it is operated. Once settled, households receive visits from workers to monitor the composting process and collect data using the same model as for community composting. When the quality of the compost is good enough (usually after one year), monitoring visits - they can go up to 4 visits - stop and the household autonomously manages its compost.

## WHO WAS COVERED BY THE PROJECT AND WHAT IS THE ROLE OF REVITALIZA

As Revitaliza is implemented by the province of Pontevedra to deal with households' waste, municipalities and its inhabitants are the first targets of the project. Yet, the project does not only stop at households but it also covers specific entities producing bio-waste in high quantity, such as **restaurants, coffee shops, hotels, hospitals and schools.**

As the project has started 3 years ago and the area is not yet fully covered, Revitaliza offers three options to municipalities regarding whether they wish to fully implement the project or simply run a pilot first:

- 1. The basic voluntary option.** Composters and trainings are provided by Revitaliza, but once everything is settled, the municipality is left in charge of running the process. The concept behind this option is to get an idea of how the system works and to provide examples of how this method is sustainable in the long-

term, via the trial of only one community composting site for instance.

- 2. The mandatory option.** Revitaliza pays the municipality to completely run the system. Revitaliza therefore pays for all the costs, including technicians, machines, shredders and trainings for 4 years or until the municipality is ready to take care of the composting system by itself. With this option, all the restaurants and hotels will have their own community composting site.
- 3. The most recent option,** which is still being developed, once option 2 is well-functioning. It consists of having Revitaliza's activities covered by a municipal ordinance, thus making it regulatory and broadened so as to include a mandatory waste collection system. Thus, waste management fees would not be fixed anymore but would vary according to the quantity of recyclable or mixed waste generated.

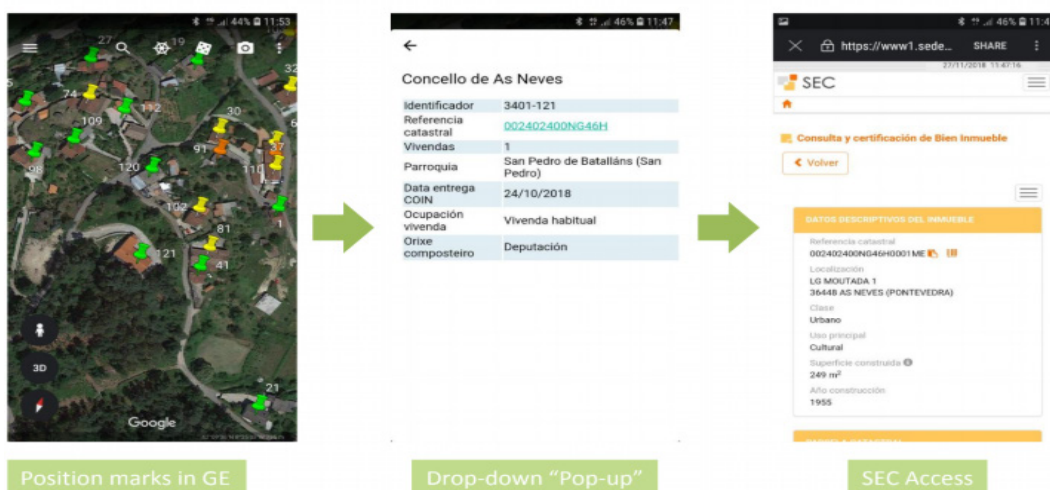


Image 1: Revitaliza's mobile phone application.

So far, 10 municipalities have chosen option 2, while 34 municipalities formally adhered under option 1. In 2019, this led to a total of 44 municipalities fully or partially covered by a decentralised composting option.

Therefore, regardless of the option chosen by municipalities, Revitaliza operates in the role of supervisor. The Revitaliza team is now composed of 44 people, of which 39 comprise the technical body of master composters. These master composters are the ones in charge of implementing the composting options, teaching to individuals or entities, such as restaurants or hotels, how to compost, as well as collecting and analysing the data to begin building a robust database to monitor the system.

Apart from this monitoring role, Revitaliza also offers training to its employees. This allows them to become masters composters. They usually work on the project for 1 or 2 years, during this time they comprehensively learn how to

become a master composter before leaving Revitaliza and taking on work as technicians for a municipality.

## THE RESULTS

### Coverage and waste treatment

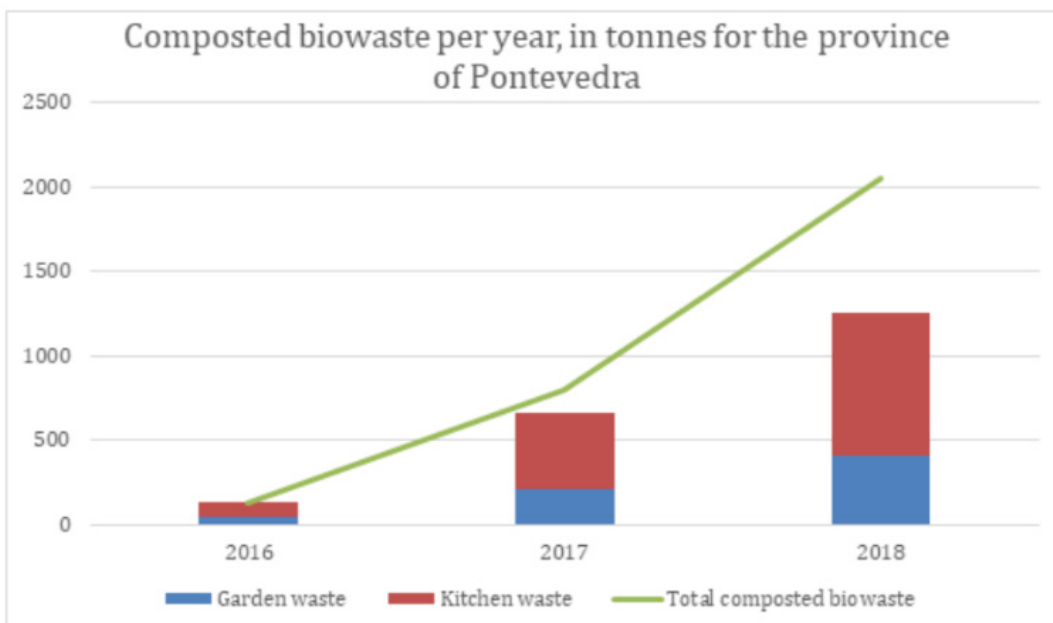
After three and a half years of implementation, the project already shows good results. The size of the covered territory increased annually with 44 councils out of 61 joining the project. This has resulted in more than 80 community composting sites spread across 26 municipalities in the Province of Pontevedra.

The project has allowed a **total of 2,052 tonnes of bio-waste to be composted since the project started, therefore diverting this same amount away from either incineration and landfilling.** Two-thirds of the 2,052 tonnes was kitchen waste, with garden waste making up the final third.

The municipality of Vilaboa is one of the leading examples with almost 100% of its population covered either by a community composting site or individual composter.

In Vilaboa, overall waste generation and residual waste are decreasing while source separation for plastic is increasing as well, as a consequence of citizens being more aware of waste prevention methods.

While waste generation is globally increasing in Galicia, Vilaboa's one went from 394 to 368 kilograms/year/capita since the Revitaliza project started..



Source: <https://revitaliza.depo.gal/>

## Waste management costs

Decentralised composting also provides a system where costs can be lower, compared to a centralised system relying on an incineration plant. In 2017, municipalities had to pay a fee of € 177 per ton for the waste treatment, including transport and collection costs (€ 109) and the cost of incineration (€ 68). This fee does not vary a lot per year as they are fixed costs not involving an economy of scale.

By implementing a decentralised system, Revitaliza intends to reduce the waste management treatment costs by establishing a community-led, decentralised system. Whilst initial implementation of this system might result in higher costs to begin with, as it requires establishing the material alongside training employees and citizens, in the long run, **the cost per ton of treated waste should be 4 to 5 times lower than the centralised system.** For both community composting and home composting, set up and training costs are quite high and are expected to respectively reach € 106 per tonne and € 195 per tonne during the first semester. Then for both treatments, costs decrease

down to a fix amount of less than € 40 per tonne over the following years.

## Employment and training

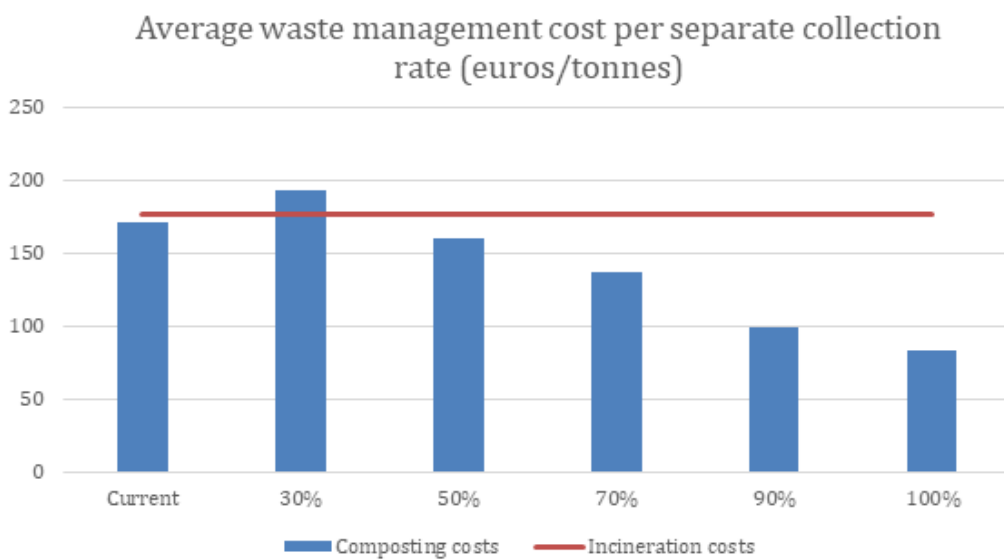
The project also benefits local employment and most of the project's employees are trained at the same time. From 2 employees in 2015, this number subsequently rose with the growth of the project to 44 employees in 2019, most of whom are technicians trained to become master composters. After one to two years these employees then leave to work for municipalities and pass on their knowledge to the next generation. In 2016, 20 master composters were trained, they were 30 in 2017 and 2018, and they will be 40 in 2019.

## THE RECIPE BEHIND THE PROJECT'S SUCCESS

One key factor to highlight when examining the Revitaliza project is the data gathering conducted before and during the project. The project started in 2015 but the roll-out phase began one year later, after which precise data was gathered and analysed, leading to a concrete and realistic work

plan. Recognising the challenges of creating a decentralised system from scratch, within an existing centralised composting one, Revitaliza thoroughly analysed how the population was scattered and for each type of area, assessed what was the most adequate treatment for each region. Not only was this done for the whole province, but an analysis was also done specifically for each of the 61 municipalities, providing the exact number of home composters or composting boxes that were needed in each municipality.

Another important factor is the use of a strong communication plan, intended for residents living within the municipalities targeted by the project. For example, for home composting the visits are communicated well in advance and planned to properly explain the process to residents. Whereas for community composting sites, public meetings are organised before the set-up and explanations are given to all participants to ensure a clear understanding of the composting methods and requirements.



Source <https://revitaliza.depo.gal/>

## NEST STEPS, CHALLENGES AND GOING BEYOND

The Revitaliza project only started 3 years ago and is already showing highly encouraging results where it was rolled-out. As the coverage is not yet fully achieved, the next step is for all the 60 municipalities to join the project, and in the long run for the municipalities to run the system autonomously. Similarly, among the 44 municipalities which have already joined, not all of them are completely covered with composting options. Some entities have also proven to be challenging, such as restaurants producing high volume of bio-waste.

Since the quantity varies regarding the time of the year due to seasonal factors, this results in some issues

with the composting process that lead to extra costs for the project to solve. In this regard, specific systems are under consideration to train employees to manage the composting process themselves or to propose a fee for Revitaliza to take care of it.

Another challenge to consider is extending the project to the municipality of Vigo. Being a densely populated area, Vigo was taken into account during the data gathering but left out when concretely rolling out the project, as it was deemed too complex to cover in the first phase.

The Revitaliza project offers a cheap, community-based, local and environmentally friendly system to manage bio-waste. Although the project is quite young, it has

already showed very good results. In that sense, it perfectly fits the needs of the region where separate collection is still extremely low and therefore leaves a large reliance on harmful and capital-intensive waste treatments.

Looking beyond Spain and even Europe, Pontevedra offers the living example that decentralised waste management for organics is feasible and preferable for the environment and the local community.

For more information visit:  
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Or contact:  
[hello@zerowasteurope.eu](mailto:hello@zerowasteurope.eu)

Source:  
[revitaliza.depo.gal](http://revitaliza.depo.gal)



Zero Waste Europe is the European network of communities, local leaders, businesses, experts, and change agents working towards the elimination of waste in our society.

We empower communities to redesign their relationship with resources, and to adopt smarter lifestyles and sustainable consumption patterns in line with a circular economy.

Case study by: Pierre Condamine

Visual design by: Petra Jääskeläinen & Rossella Recupero

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