ZERO WASTE EUROPE

Ajuntament de Cornellà de Llobregat

Rezero
Fundació prevenció residus i consum

ERIC
ELEVATING REUSE IN CITIES

Food surplus donation using reusable packaging

An end-to-end solution in Cornellà de Llobregat (Spain)

September 2026

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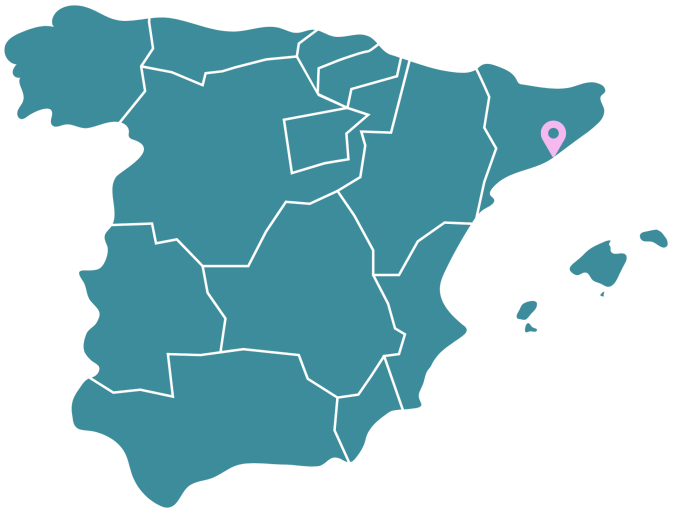
Quick overview



Location: Cornellà de Llobregat, Spain

Date: 2022 to present

Type of pilot: Food surplus management through the use of reusable containers in primary school canteens

Scale / size: 5 participating public primary schools

Results: 5,037 food portions recovered (2022-2025) using reusable containers

Main objectives of the initiative:

- **Food recovery**: channel surplus food from school canteens to reduce food waste and contribute to local food security by redistributing meals to vulnerable populations.
- **Reduction of single-use packaging**: implement a reusable container system to minimise the use of single-use plastics.
- **Contribute to climate mitigation**: reduce greenhouse gas emissions by avoiding plastic waste and minimising the carbon footprint associated with food waste generation and management.

Main objectives of the case study:

- **Demonstrating viability of the reuse scheme**: assess the feasibility of implementing a food surplus recovery and reusable packaging system in municipalities, based on available infrastructure, resources, and partnerships.
- **Defining indicators and assessing positive impacts**: quantify and assess the environmental impacts of the initiative, including waste reduction, plastic avoidance, carbon emissions savings.
- **Replicability and scalability**: demonstrate the potential for replicating and scaling this model in other municipalities or public institutions with similar infrastructure and challenges.

1. Context and rationale

In April 2022, the Municipality of Cornellà de Llobregat launched this initiative to **tackle the issue of food waste in school canteens** while reducing the environmental impact of public catering services. The project combines food recovery with the exclusive use of reusable containers, offering a solution that is both environmentally sustainable and socially beneficial by providing nutritious meals among people referred by social services, as a complement to the daily cooked meals they receive. The project involves the catering companies Associació Educativa Trompitxol, Plat de Colors, and Paladarines, and in its early stages received support from the Agència de Residus de Catalunya and the Àrea Metropolitana de Barcelona.

Cornellà's updated Waste Prevention and Management Plan (2024) includes specific measures to reduce plastic use. Building on this framework, the municipality joined the ERIC (Elevating Reuse in Cities) project in 2025 to further strengthen its commitment to reuse, waste prevention, and plastic reduction. Within this context, the initiative was enhanced through the introduction of environmental impact indicators, enabling systematic monitoring of both the food surplus redistribution process and the reusable container system.

The project demonstrates the feasibility of implementing reusable container systems for managing school food surplus, highlighting how municipalities can adopt low-impact, circular logistics solutions.

Although the initiative has been in place for several years, its impact on plastic reduction had not been fully quantified until the collaboration within the ERIC project. This partnership with Rezero and Zero Waste Europe has enabled Cornellà to collect, analyse, and present measurable results.

Ultimately, the project reinforces Cornellà de Llobregat's role as a sustainability leader, particularly in reducing single-use plastics, preventing food waste, and promoting circular practices in public catering services.

2. Implementation

The implementation of the food surplus recovery and reusable container scheme in Cornellà de Llobregat has been carefully designed to ensure safe food redistribution while minimising environmental impact. The system integrates efficient logistics, durable reusable containers, and clear operational procedures.

The system uses polypropylene (PP) containers with lids, chosen for their durability, light weight, and suitability for freezing. These containers are designed for multiple reuse cycles without compromising food safety.

Although no deposit system is in place, the scheme relies on user cooperation for returns, supported by strong community engagement and regular reminders.

Operational workflow

1. **Schools → Distribution centre**

   At the end of each school day, unserved meals are carefully selected based on their suitability for freezing. The food is placed in individual reusable containers, labelled (including meal type, origin, and date), and stored in freezers to ensure full traceability and food safety.

   Frozen, labelled meals are collected weekly from schools by the municipality and transported to the local distribution centre (Casal de la Gent Gran), where they are stored in a freezer. Transport is carried out using bicycles equipped with isothermic cargo boxes, supporting a low-impact logistics model.

2. **Distribution centre → Users**

   At the distribution centre, meals are distributed to vulnerable individuals referred by local social services.

3. **Users → Distribution centre**

   After consumption, beneficiaries are asked to return the containers to the distribution center, preferably cleaned or rinsed in designated boxes.

4. **Distribution centre → Schools kitchens**

   Returned containers are sent back to schools using the same bicycle-based system (reverse logistics).

   Used containers must be transported separately from those containing food, using designated boxes or bags to avoid cross-contamination.

5. **Cleaning and reuse**

   At the schools, containers are sanitised in dishwashers at temperatures above 65°C, ensuring compliance with hygiene standards. Labels are removed and containers are stored for the next use cycle.

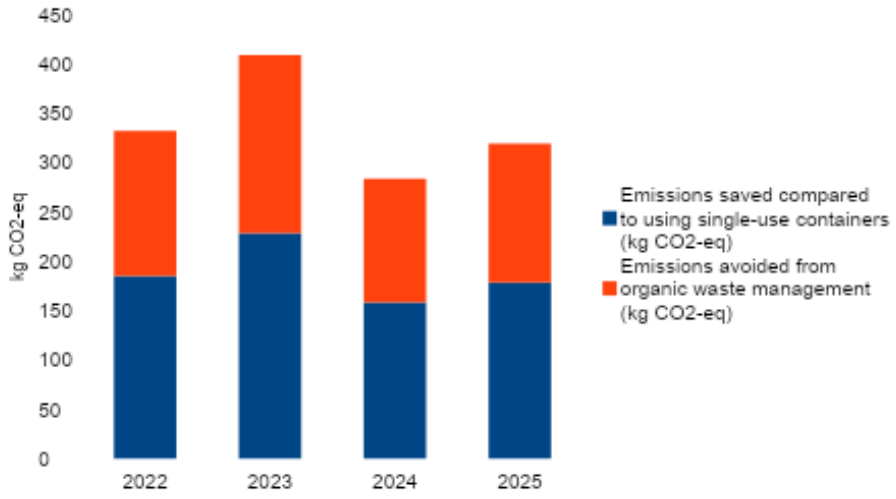
3. Results

CATEGORY	INDICATOR	TOTAL (2022-2025)	ANNUAL AVERAGE
Food waste recovered	Meals recovered	5,037	**1,259**
	Weight of food diverted	1,642.09 kg	-
Plastic waste avoided (reusable containers)	Single-use plastics avoided (expressed in kg[1])	171.6 kg	**42,81 kg**
Emissions avoided (CO2-eq)	From single-use plastics	750.51 kg	**187.63 kg**[2]
	From organic waste management	592.82 kg	**148.20 kg**
	Total emissions avoided	**1,343.34 kg**	**335.83 kg**

[1]**Note:** Single-use plastic items are very light, which is why the weight figures (171.6 kg in total, or about 42.8 kg per year) look small. Expressed as volume, the impact is easier to picture: the total avoided is about 6,860 L, equivalent to **58 wheelie bins of 120 L**, or roughly **15 bins per year**.

Volume calculated with an average conversion factor of 1 kg of SUP ≈ 40 L.

[2]**Note**: The environmental impact per use was calculated based on the corresponding CO_2-equivalent emissions reported by UpScorecard. For reusable polypropylene plastic food containers, the impact is based on 50 uses (33 g CO_2-eq per use). For single-use polypropylene packaging with a lid, the impact is 182 g CO_2-eq per use. Source: UpScorecard.



4. Learnings and insights

Key success

- **Less single-use waste**: the introduction of reusable containers has significantly reduced reliance on single-use packaging and plastics, contributing to waste prevention and lower carbon emissions.
- **Proven circular model**: the circular model (collection, redistribution, return, and sanitisation) has proven effective, with high participation rates and minimal container losses.
- **High return rates**: return rates of more than 90% have been achieved without a deposit system, supported by personalised follow-ups and regular reminders (personal communication to users when collecting the meals). Occasional losses are manageable through periodic replenishment.
- **Strong stakeholder coordination**: effective coordination between stakeholders (school's parents' association, school management teams, catering companies, and the City Council (environment, education and social services departments) and clear protocols has enabled smooth operations, supported by scheduled collections and basic return tracking.
- **Public funding for launch**: financial support from supramunicipal and regional administrations has enabled the acquisition of essential materials (reusable containers and freezers), helping to launch the project.

Practical takeaways and recommendations

- **Plan for reuse from the very beginning**

  When implementing food surplus redistribution measures, reusable container systems should be integrated from the beginning rather than introduced later. This approach maximises environmental and economic efficiency while avoiding the transition costs associated with single-use packaging.

- **Clear stakeholder communication**

  Effective communication is essential to ensure proper implementation:

  - Schools management team, city council, beneficiaries, and catering providers should be clearly informed about the purpose and benefits of food recovery using reusable containers.
  - Further attention could be given to ensuring that beneficiaries are aware that the food they receive comes from recovered surplus food from schools, helping strengthen the social and environmental value of the initiative.
  - Operational protocols must be clearly defined to ensure consistent use, compliance with hygiene standards, and safe food handling, while also specifying the responsibilities and obligations of each party.
  - Training sessions for the stakeholders involved in the distribution and redistribution chain are essential.

- **Monitoring and tracking**

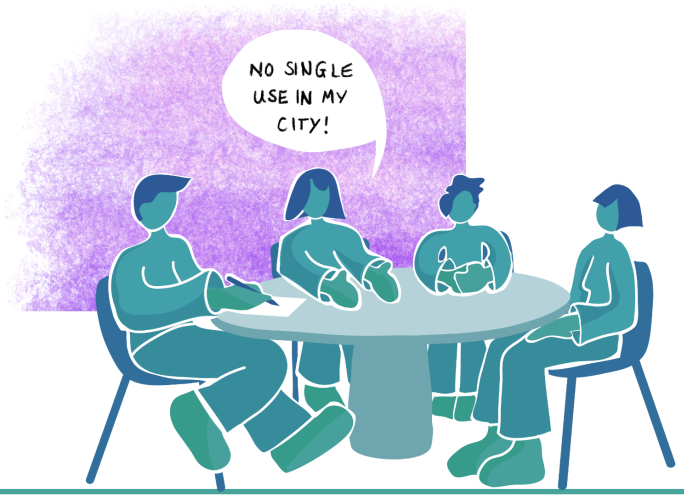
  A robust monitoring system is key to ensuring efficiency and accountability:

  - Track quantities of recovered food, container stock levels, and return rates.
  - Record containers delivered, returned, and replaced, with periodic reporting to assess impact and performance.
  - Define key environmental and social indicators and conduct annual assessments.
  - Incorporate an economic analysis, such as savings from reduced organic waste management and avoided single-use packaging, to strengthen the business case and support municipal decision-making.

- **Beneficiary engagement**

  Active user participation is critical to the system's success:

  - Provide regular reminders and awareness-raising actions to encourage proper use and return of containers.
  - Introduce simple commitment agreements to reinforce responsible behaviour.



5. Scaling and replication

Embedding reusable systems from the outset, supported by clear protocols, strong stakeholder engagement, and systematic monitoring, maximises environmental, social, and operational benefits. This approach ensures that the model is scalable, replicable, and sustainable across different public institutions, municipalities, and regions.

Expansion within Cornellà de Llobregat

The model can be extended beyond schools to other public services and facilities, including kindergartens, elderly care residences, community meal services, and other municipal catering operations where food surplus is generated. This would increase both environmental and social impact at the local level.

Replication in other municipalities and regions

The initiative is highly transferable to other cities facing similar challenges related to food waste and plastic use.

Other Catalan municipalities, such as Sant Just Desvern, Barcelona, and Torrelles de Llobregat (the latter also a member of the ERIC project), are already implementing similar solutions using reusable containers for food redistribution. In some cases, food is channeled through social enterprises to beneficiaries or directly to school families. The logistics and cleaning systems also vary depending on the initiative.

Data collection and continuous evaluation

Ongoing collection of quantitative and qualitative data is essential to monitor environmental impact, operational performance, and social outcomes, while supporting continuous improvement and replication. It is also key for identifying challenges, informing decision-making, and providing evidence to secure support from stakeholders and funding bodies.

Integrated environmental and social approach

Aligning food recovery with plastic reduction strengthens the overall impact of the initiative. Ensuring coherence between environmental and social objectives enhances both effectiveness and stakeholder engagement.

Contact

Zero Waste Europe (ZWE) is the European network of communities, local leaders, experts, and change agents working towards a better use of resources and the elimination of waste in our society. We advocate for sustainable systems; for the redesign of our relationship with resources; and for a global shift towards environmental justice, accelerating a just transition towards zero waste for the benefit of people and the planet. www.zerowasteeurope.eu

Rezero (Waste Prevention and Responsible Consumption Foundation) is a Catalan non-profit and independent organisation. Working to change the current production and consumption model towards a Zero Waste Strategy, by networking with social, political and economic agents. They promote responsible consumption and waste prevention actions through the development of transformative strategic campaigns, plans and policies and research studies. www.rezero.cat

The Elevating Reuse In Cities (ERIC) project works with 10 European municipalities, selected during the project's first phase for their commitment to advancing concrete policies on plastic prevention and reuse. Together, these local governments represent around 4 million EU citizens: Ljubljana in Slovenia; Cornellà de Llobregat, Viladecans, and Torrelles de Llobregat in Spain; Brussels in Belgium; the metropolitan areas of Nantes and Lyon, along with Bordeaux, in France; and Funchal and São João da Madeira in Portugal. www.ericproject.eu

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