



Zero Waste Europe was created to empower communities to rethink their relationship with resources. In a growing number of regions, local groups of individuals, businesses and city officials are taking significant steps towards eliminating waste in our society.

CASE STUDY #7



June 2016

THE STORY OF PARMA

A vivid example of a transition from traditional waste management to Zero Waste in only 4 years. The key for their success: political will, involvement of civil society and a strategy based on minimising residual waste.

Parma is a city located in Northern Italy, in the region of Emilia Romagna. Well known for their food and quality of life, the region is, however, Italy's top waste producer, with 636 kg of waste per capita in 2014. This is roughly 150 kg above the Italian average, and 160 kg above the EU average. The region recycles 58.2% of its municipal waste (MSW), meaning that 274 kg per capita are still sent to disposal, to be landfilled or incinerated, while the European average is 259 kg. Fortunately, the situation is changing and Parma is leading the transition towards Zero Waste in the region.

The city of Parma, with 190,284 inhabitants, was not in a better situation than the rest of the region: separate collection had stagnated around 45% for years and waste generation was significantly high. This led the Province and the Region to propose the construction of an incineration plant with a capacity of 180,000 tonnes of MSW per year to be built in Parma in 2013.

Social mobilisation

The proposal to build an incinerator raised concerns with the population of Parma, mostly those from the local Zero Waste group GCR; Gestione Corretta Rifiuti e Risorse (*Proper Waste and Resources Management*). On top of raising awareness of the problems associated with the incinerator that was going to be built in Parma, GCR actively called for alternatives and for the adoption of a zero waste strategy for the city.

Thanks to social mobilisation, the need for a new model of waste management became a central element of the local council elections in 2012. A turning point came when GCR organised several electoral debates where the electoral candidates were confronted on their model of waste management for the city. They were, therefore, obliged to clarify their position on the incinerator, expressing whether or not they thought it needed to be built.

New government for Parma

The elections removed the pro-incineration mayor and brought a new one that was committed to stopping the incinerator and making a Zero Waste city out of Parma. As a proof of the willingness to integrate civil society in the new model of waste management for Parma, Gabriele Folli, former activist of GCR, was appointed as local councillor for Environment.

Despite their commitment, construction work on the incinerator was already highly advanced and the expensive cost of compensation included in the contract made it



impossible for the city to prevent the project. Aldo Caffagnini, from GCR, summarised it by saying that "we lost the battle to stop the construction of the incinerator, but we certainly won the war by succeeding to transform the system and proving incineration is not needed if a zero waste strategy is implemented".

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Once in office, the city government started to design a zero waste strategy for Parma. This was elaborated through a process of public meetings and consultations with citizens that served to gather input to design a better system. Among these meetings, the council organised some specifically addressed to non-Italian speaking communities.

First steps

In November 2012, Parma separately collected 48.2% of its MSW, mostly through roadside containers. Door-to-door collection was barely used and bio-waste wasn't collected in most of the city. The costs of disposal were very high, while the revenues from recycling were very low. Although separate collection results were slightly better than the Italian average, the collection system had a lot of room for improvement.

Similar to other cities, Parma started its zero waste strategy by improving the separate collection of waste, through door-to-door collection and the separate collection of bio-waste.

The city started the shift in the historical centre, with the aim of progressively introducing it to the whole city. Although it is unusual to start with the city centre, the need to introduce bio-waste collection was used as a leverage to rethink the whole system of collection. A year and a half later, all districts were collecting four waste streams (bio-waste, paper and cardboard, light packaging and residual waste) at kerbside.

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The introduction of door-to-door collection came along with the separation of glass and light packaging (i.e. plastics & metals, a

model that is widespread in Italy to ensure operational and economic optimisation of the system) into two different collections.

In these first steps, the council managed to get Iren, the waste operator company, engaged in transforming the model of collection of Parma.

Although Iren, the waste management company, owns the incinerator and has been dealing with MSW of Parma since before the shift, the political initiative to go towards zero waste managed to engage local employees of Iren and motivated to improve the system. This contrasts with other provincial capitals managed by Iren, where, without political will, results have remained wanting.

Separate collection

	Bio-waste	Paper & cardboard	Bottles, cans & cartons	Residual waste
Residential areas				
	Twice a week	Once a week	Once a week	Once a week
City centre				
	3 times a week	Once a week	Once a week	Twice a week
				

As of 2014, inhabitants of Parma have had their waste collected door-to-door. The collection system is, however, modulated according to the population density of the neighbourhood, with bio-waste and residual waste being collected more often in the city centre than in residential areas. In the outskirts, buckets tend to be substituted by larger 120l wheeled bins for biowaste, while in the city centre the collection of residual waste is done in 50l bags.

The second main difference is that, in the city centre, collection takes place during the night,

while in residential areas waste is collected in the morning.

Garden waste and glass are collected in roadside containers. Garden waste was already collected this way in low-density areas, while glass started to be collected in road containers separately from light packaging with the introduction of kerbside collection. The previous multi-material collection of glass alongside plastics and metals was causing quite a few issues, in terms of higher confusion (hence more impurities), post-collection separation (which incurred costs instead of revenues) and higher costs for transportation.

Of course, any change in collection systems has some challenges and the procedures need some time to be optimised. In Parma the operators of the separate collection and an environmental brigade make sure the collections are performed properly. Soon after the introduction of the new system, the problems that arose with the change –such the type of bag to be used and the time of collection- have been significantly reduced. Yet there is still some control from the company and the operators who, at the same time, provide feedback to citizens.



Funeral organised to the last road container. © Città di Parma 2014.

Pay-as-you-throw

Another fundamental change more recently brought to the system is the introduction of a pay-as-you-throw (PAYT) scheme, under which the waste fee of every household depends on the waste they generate.

The fee for every household is composed of two main elements: a fixed part based on the number of household members and the square meters of the household, and a variable part that essentially depends on residual waste generation (accounted in terms of number of set-outs) and home composting.

The fixed part already covers a minimum number of collections of residual waste per household, which is intended to cover the fixed costs of managing the system and concurrently to prevent dumping and littering. Additional removals are charged (€0.7 per bag, €1.4 per bucket and €4.2 per wheeled bin). In terms of positive incentives, households get a 12% reduction in their fee if they do home composting. Households making use of nappies are not charged for the extra removals.

After the introduction of this system, **the collection of residual waste has dropped and at every collection, only 25% of inhabitants take out their bin to be emptied.**

A flexible system

The council has introduced two main elements of flexibility to door-to-door collection, the eco-stations and the eco-wagon. These complement the door-to-door collection system so as to better adapt to the specific needs of the citizens.

Eco-stations

The eco-station is a small kiosk with eight windows (four on each side) where recyclables and residual waste can be left 24/7 so that those needing to take out their waste at a different time to the collection can do so.

The system is computerised and can only be accessed to with a user card. The recyclables are collected free of charge, whilst residual waste is subjected to the 0.7€ per 40l, the same as doorstep collection and that is automatically added to the annual fee. Inside the kiosk, there are 8 wheeled bins that are collected daily.

At the beginning of early 2016, there were four eco-stations located on the outskirts of Parma, and four more are to be installed by the end of 2016.



An Eco-station. ©GSA Igiene



Eco-wagon

The Eco-wagon operates in the historic centre similar to a bus with its own routes and stops. Citizens are informed of these so that they can bring out their waste. It operates only those days when there's no service.

The eco-wagon stops for either half an hour or two hours at every stop and receives two different types of waste streams: residual waste and light-weight packaging. The reason of this is that these are the only fractions that are kept in every household in the centre, as for the rest, there is a wheeled bin per condominium and, so, in case of need of certain flexibility it can be arranged internally at every apartment building.

Residual waste bags are also charged 0.7€ through a tag identifying the owner of every bag.

Eco-wagons are also serve the purpose of better explaining separate collection to citizens and diffusing information about waste management.

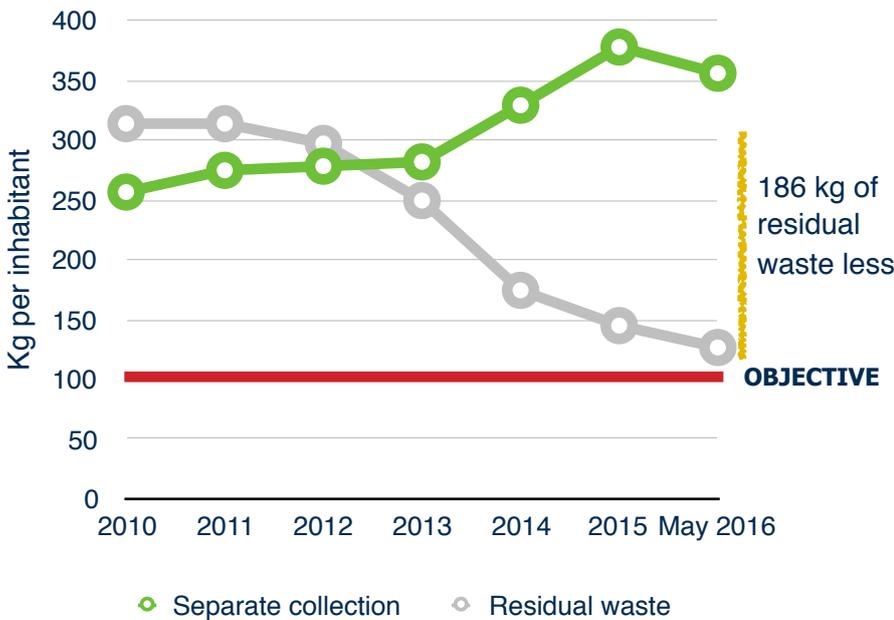
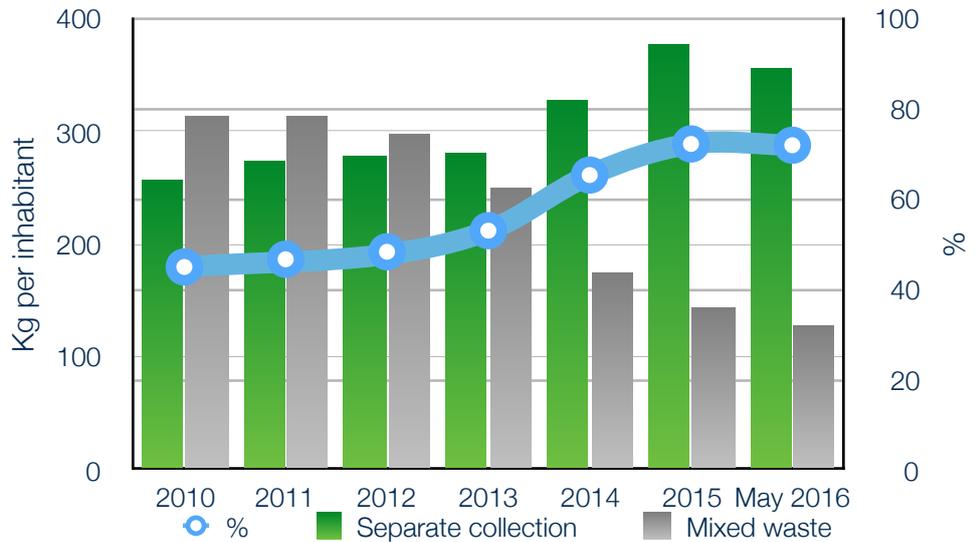
Although these offer flexibility to the system, they represent a very small proportion of the city's total waste (less than 1% of Parma's total collection). On average 20 people use the four eco-stations daily.

These were not part of the initial plan, but after taking the first steps, they were suggested as something which could be useful to reassure population and to appease possible conflicts they could have with regards to door-to-door collection, along with introducing flexibility to the system.

Results

The results of Parma are outstanding from all points of view. In only 4 years Parma has overall managed to reduce total waste generation by 15% and increase significantly separate collection, moving from 48.5% in 2011 to 72% in 2015. Residual waste has also decreased significantly in the city, from 283 kg per inhabitant a year in 2011 to 126 kg a year in late 2015, a reduction of 186 kg of waste per inhabitant, meaning a 59% reduction in 4 years.

SEPARATE COLLECTION OF WASTE IN PARMA 2010-2015



One must note that PAYT was only introduced in the second half of 2015; hence it is still on its first months of implementation. The city council's prediction for the end of 2016 are to go below 100 kg of residual waste per person and to 80% separate collection.

Aggregated data of the first 5 months of 2016 suggest a further decrease of the residual waste and of the total waste generation, reaching 126 kg and 497 kg per inhabitant, respectively.

Not only more but better recycling

The new separate collection scheme has proven to be a success, not only because of the results in separate collection and reduction of residual waste, but also because it has managed to significantly reduce the contamination in every waste stream, resulting in higher quality materials. The impurity of collected light packaging has dropped to 7%, paper & cardboard are typically between 1 and 2%, glass between 1% and 3% and bio-waste between 3 and 5%. This allows for quality recycling, an essential pre-condition for any economy that aims to be circular.

Zero waste makes economic sense

The new waste management system of Parma has not only brought environmental benefits, but also a reduction in the overall annual costs of €450,000.

Whilst the costs of collection have increased with the introduction of a new fraction and door-to-door collection, bringing higher labour costs, the revenues from selling high purity materials jumped from €0.8 m in 2013 to €1.3 m in 2014, and the annual costs of waste disposal have been reduced by almost €3.5 m. Once again, in comparison to traditional waste management, zero waste strategies mean less cost for the authorities and less costs for the citizens.

	2013	2014	Balance
Collection and transport of residual waste	5,300,099	6,868,191	1,568,092
Treatment of residual waste	9,050,214	5,563,844	-3,486,370
Separate collection	14,063,648	15,049,744	986,096
Treatment and recycling	1,957,782	2,752,128	794,346
Income from recycling	-805,295	-1,340,000	-534,705
Street sweeping and other services	5,908,646	6,127,451	218,805
TOTAL	35,475,094	35,021,358	-453,736

Besides the economic savings, the transition from collection with roadside containers to door-to-door has significantly increased the number of direct jobs created only in collection; jumping from 77 before the change of the system to 121 operators in 2015.

Zero Waste to cover all Emilia-Romagna?

In addition to their success in Parma, Zero Waste activists have succeeded in pushing for a regional law in Emilia-Romagna that has set higher targets than national and European ones (25% reduction of waste, 73% separate collection and 70% effective recycling) and provided incentives for virtuous cities, while penalizing those lagging behind using a bonus/malus system.

This regional system of incentives has already provided €710,000 to Parma for its reduction of residual waste, being the only provincial capital in Emilia Romagna benefiting from the incentive programme. In Parma, both Zero Waste activists and the Council are confident that this law and the good example of Parma will help spread zero waste in the whole region, despite the pro-incineration policy of the regional authorities.

Looking forward

After making impressive progress, Parma wants to continue improving. The city is expecting to get to 80% separate collection and below 100 kg of residual waste by the end of 2016, but they still have lots of new ideas, plans and goals:

- A new reuse centre placed next to the civic amenity site opened in late April 2016. The aim is to make of this the first step prior to the civic amenity site and be able to give a new life to products, while creating local jobs and providing an educational service.
- Residual waste collection may shift to a more on-demand system, so as to optimise the transport.
- Garden waste & glass may be collected at kerbside, with the possibility of making garden waste collection an extra (hence, charged) of the basic service provision.
- One of the kindergartens of the city will start using washable nappies in 2016, with the intention of extending this practice to the rest of the centres and to promote reusable nappies for the entire city.

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Sources:

Parma City Council (www.comune.parma.it)

Iren (www.irenambiente.it)



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