

THE STATE OF ZERO WASTE MUNICIPALITIES 2020



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Foreword

Esra Tat, Associate Director, Zero Waste Europe

Welcome to the first ever State of European Zero Waste Municipalities report.

During the past 10 to 15 years, awareness and recognition of the importance of zero waste has grown rapidly. As the crises facing our planet have multiplied and deepened, we have seen exciting and growing recognition of how a zero waste approach can be applied locally, and the willingness of decision-makers to apply these policies within their communities.

In numerous cities and towns throughout Europe today, ambitious strategies and policies are continuing to be implemented that prevent waste from occurring. Forming innovative partnerships between citizens, public authorities, businesses and more, these communities are trailblazing a path for the rest of Europe to follow towards a circular economy.

Created by the Zero Waste Cities programme within Zero Waste Europe, this report is a celebration of these pioneering zero waste municipalities. It is a recognition of the leaders and communities who have recognised the urgency of the crisis we face, and have acted upon this. From 2007 when the first zero waste municipality was born in Capannori, Italy, the movement has continued to grow. The variety and number of zero waste municipalities in Europe today proves that it is an approach which can be successfully applied in a range of diverse contexts. Whilst the Zero Waste Cities programme has nearly 400 municipalities who have committed to our vision of zero waste, there are several good practices that tackle certain issues or policies happening outside of our municipalities within our programme that this report will also highlight.

Furthermore, this report is also a showcase of how exactly these communities have designed and implemented ambitious local zero waste strategies and policies. We use the term cities and municipalities interchangeably throughout our work and this report, because we work with local authorities of all sizes, from small rural towns to large metropolitan cities. We hope this report can act as a catalyst for others to join and begin implementing their own zero waste roadmap. Together with the Mission Zero Academy, we are building Europe's hub of zero waste expertise, designed to support any municipality who wishes to improve the way they reduce and manage waste. Together with our members and partners, Zero Waste Europe is committed to driving Europe's transition towards a sustainable future. Zero Waste Cities are the vehicle to achieve this goal, and we hope this report inspires as much as it interests you.

The growth of Zero Waste Cities sits at the heart of our work as an organisation. Whether the focus is on preventing plastic waste, fighting harmful disposal methods or supporting reuse systems, implementation begins and can have the biggest impact at the local level. Across all of Europe, communities have stepped up and committed to play a leading role in preventing resources from becoming waste and help build local regenerative economies. This report is the story of those communities. A celebration of the leaders who shone and those behind the scenes who have pushed us towards progression.

We know that stories have the power to change the world.

This is the story of Zero Waste Cities. What they are, the people behind them, and the path they show towards a better future.

We hope you enjoy reading it.

What is a Zero Waste City?



Zero Waste Cities is Zero Waste Europe's programme dedicated to help cities and communities transition towards zero waste. It brings together a European-wide collective of expert knowledge for local stakeholders to implement best practices, as well as providing mentoring and recognition for municipalities wishing to implement zero waste strategies. Zero Waste Cities is run jointly by Zero Waste Europe in Brussels and our member organisations throughout Europe.

The programme's aim is to accelerate the transition towards zero waste at the city level, supporting municipalities of all sizes and from all backgrounds. We aim to ensure the ambitious implementation of the latest EU legislation and zero waste strategies, based on citizen-centered models that lead to a substantial decrease in waste generation and increase in separate collection and recycling, and overall improvement of citizens' quality of life and local resilience. The programme includes frontrunners and best-performers, as well as cities which are still at the very early stage of their journey, but have made the firm commitment to consistently advance towards zero waste. We use the term city and municipality interchangeably throughout our work, recognising the range of local authorities we work with, from small rural towns and villages to large metropolitan cities.

The Zero Waste Cities approach works with municipalities specifically as this is where competency sits most often for waste management in Europe. It focuses on the continuous effort of a local authority to phase out the generation of waste, not by burning or landfilling it, but instead by creating and implementing systems that do not generate waste in the first place. **We focus specifically only on reducing municipal solid waste (MSW)**, which describes household waste and waste similar in nature and composition to household waste. For now, we focus just on the origins, composition, collection and treatment of municipal solid waste.

Our Zero Waste Cities all hold one central feature: the desire to keep improving and optimising their existing strategies to reduce waste even further. Whether a municipality is at 7% or 70% separate collection rates, there is still room for improvement, and it is this desire which sits at the heart of our approach. The foundation of a zero waste city remains an effective door-to-door separate collection system, one that allows for high-quality recyclable materials to be collected, including most notably organics. However, zero waste cities go beyond just recycling, creating and maintaining systems that prevent waste from occurring in the first place. Policies that prioritise reuse are adopted, such as laundry systems for cloth nappies, whilst municipalities can set a legal and regulatory framework to enable business-led solutions to flourish, such as deposit return schemes and packaging-free shops.

Furthermore, a key distinction of our Zero Waste Cities is that they commit to work towards phasing out their use of rigid residual waste management facilities that do not allow for the constant improvement of waste prevention and recycling rates. Zero waste programmes in the long-run only accept residual waste management facilities that:

- i Maximise the recovery of recyclables;
- ii May be progressively converted into recycling platforms; and
- iii Avoid any thermal treatment, which is considered as "destructive disposal" and a loss of resources.

The municipalities we work with recognise the environmentally harmful nature of many disposal methods and commit not to renew or extend existing capacity of such technologies, which have been proven to create a lock-in effect for waste generation and contradict a needed carbon-neutral agenda. For example, when a municipality has a contract with an incinerator, it needs a constant flow of waste in order for the incinerator to operate or make a profit if privately owned. In such circumstances, there is no incentive for a municipality to reduce the volume of waste its inhabitants create, due to the financial or legal pressure placed by the contract with the incinerator. The most successful zero waste strategies are in situations where a municipality has sufficient flexibility in the system to implement new policies and adapt existing ones to further decrease waste. Most often, this flexibility can be achieved when a municipality is not tied into a long-term contract with a residual waste management facility, such as an incinerator.

▶ Read more about how to effectively build a bridge strategy for residual waste to transition away from these disposal technologies.

One key feature of a flexible system is its decentralised aspect. Through decentralised infrastructures and measures, the system will be shaped in order to fit a specific context instead of a one-fits-all-contexts approach and will be able to offer flexibility. Measures such as decentralised composting will allow for several solutions for each context. For instance, home-composting, community composting and composting plants can coexist and will enable resilience in case of a shock through the different options available.

Every year, the pressure on cities increases as more people embed themselves within urban areas. For example, 72% of people in the EU now live in cities, towns, and suburbs; and the share of the urban population continues to grow and could reach 80% in 2021. The challenges posed to cities and communities vary greatly but are significant, from securing sustainable food supplies to ensuring sufficient employment and training opportunities - something that has only been exacerbated by the COVID-19 pandemic this year.

The Zero Waste Cities approach offers a positive, community-centred roadmap for cities wishing to place sustainability at the forefront of their plans, with the framework used by municipalities adaptable to each community's local context. In turn, it provides communities and municipalities with several opportunities to transform their relationship with nature, switching the focus from waste to resource management. By localising decision-making, shortening supply chains by creating a framework for local businesses to flourish, and continually assessing the data to identify ways to optimise the system and save costs, today's Zero Waste Cities are contributing the local resilience and trailblazing a path for others to follow that will ultimately lead Europe's transition towards a circular economy.

Increasingly, zero waste strategies are featuring centrally within a city's broader climate and decarbonisation agendas. Adopting a zero waste strategy helps reduce harmful GhG emissions in several ways throughout the whole material chain. For example, if a municipality is landfilling or incinerating less waste then that immediately reduces the emissions of environmentally damaging gases and chemicals. Even smaller details can have a big impact, such as the reduction of plastic being incinerated through the implementation of effective prevention measures, or reducing the volume of organic materials sent to landfill through a quality collection system can severely reduce a municipality's GhG emissions. Looking further upstream, those economies which are more circular save a huge volume of GhG emissions being released, with less energy needed in the extraction, manufacturing and consumption of products.

▶ Interested to learn more about what a zero waste city is and where you can get started? Check out our Zero Waste Masterplan, the first stop for any municipality or community stakeholder looking to begin their zero waste journey.

▶ Zero Waste Europe has produced a blog series that explains the interlinkages between zero waste and reducing the impacts of climate change: No Time To Waste.





BIKE SWAP

BOTTLE DEPOSIT SYSTEM

How to become a Zero Waste City

From the beginning of our current recognition programme, our Zero Waste Cities have formally agreed to a set of commitments that underpin our vision and establish the foundations for a successful zero waste strategy. Our model's success is based upon local experts on the ground evaluating and monitoring these municipalities, ensuring that they are living up to their commitments, as well as supporting the design and implementation of effective and ambitious local zero waste strategies. Together, the Zero Waste Europe network works to highlight these best practices and achievements, showcasing the necessary steps that can be followed and replicated by others across Europe, as well as the benefits such strategies have brought to communities.



Download the Zero Waste Cities commitment we have used for all current municipalities.

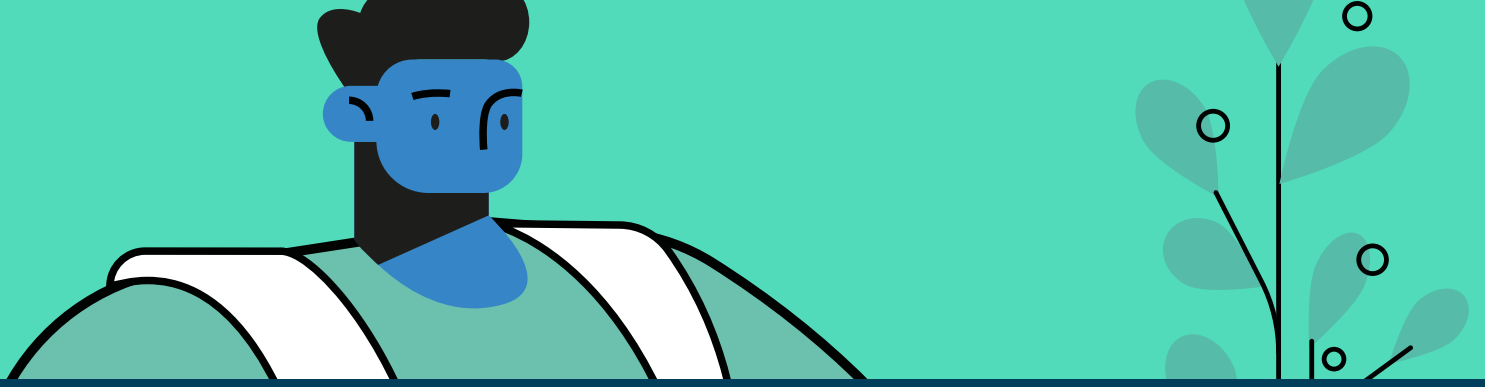
The growth of both zero waste cities and the broader concept of zero waste has been fast and exciting in recent years. However, this growth in awareness and support for zero waste brings with it a set of new challenges. We increasingly

see zero waste being defined by companies and governments as something which it is not - merely recycling, litter clean ups, or zero waste to landfill. There is a need to protect and promote the true definition of zero waste: a holistic, community-led approach that focuses on the creation of systems which do not generate waste in the first place and largely contributes to job creation and increased social integration.

This is why we are developing the [Zero Waste Cities Certification](#). Building on the success of the movement so far, we are creating an elite standard-bearing certification for municipalities to achieve when designing and implementing their zero waste strategies. Supported by the Mission Zero Academy powered by Zero Waste Europe, as a hub for expertise and resource on sustainable resource management, the Zero Waste Cities Certification will help guide and support municipalities in developing more effective, data-driven local strategies.



Further information on the certification can be found towards the end of this report.



History of the Zero Waste Cities programme

In **2007**, led by a primary school teacher, Rossano Ercolini (now President of Zero Waste Europe and Zero Waste Italy), a small but determined community movement stopped the construction of a local incinerator and convinced their municipality to commit to sending zero waste to landfill by 2020. It was there in Capannori, a town of 40,000 inhabitants in Northern Italy, where the Zero Waste Cities movement in Europe was born and continues to lead by example as a champion of zero waste. In 2013 Rossano was awarded the Goldman Environmental Prize, considered the “Green Nobel Prize” for his contributions to the Zero Waste movement in Italy.



Read more about the beginnings of zero waste in Capannori and the impact it has continued to have ever since.

Organisations and activists from across Europe began to meet regularly and collaborate in **2011**, and by **2014** Zero Waste Europe had been set up as an organisation to coordinate a strategy for driving the continent towards a circular economy. Throughout this time, an increasing number of municipalities across Italy and Spain began to follow in the footsteps of Capannori, committing to become zero waste and implementing their own ambitious local policies.

2014 marked an important milestone as Ljubljana became the first European zero waste capital city. The city joined several others across Slovenia who had already adopted a zero waste strategy, a national network which has continued to grow in size and impact ever since. The increase of Slovenian municipalities which adopted zero waste strategies, coupled with strong national legislation and important flexibility in the waste management system through a low dependency on incineration, has resulted in Slovenia currently having one of the highest recycling rates in the EU.

In **2015**, the European Commission adopted its first Circular Economy Action Plan, a significant moment that saw the importance of zero waste formally recognised by decision-makers in Brussels. The plan went further than any previous legislation by examining the issue of waste and materials from a whole lifecycle approach, integrating key actions to tackle over-consumption and fostering sustainable economic growth. This was an important step but did not go far enough, something that has been recognised by the European Commission’s announcement in 2020 of a second Circular Economy Action Plan in the coming years, reflecting the urgency of transforming our relationship with resources.

Throughout the second half of the decade, the movement of Zero Waste Cities continued to expand in existing countries, like Italy and Slovenia, whilst pioneering municipalities adopted similar policies in both Romania and Croatia. Local zero waste strategies were adopted in extremely rural and urban contexts alike within both countries, immediately leading to successful results in reducing residual waste, increasing recycling, and greater awareness on waste prevention as a whole.

In **2018**, the European Union took an important step towards creating legislative foundations to enable a circular economy within Europe when it passed a series of amendments to its package on waste-related legislation. The [revised legislative framework on waste](#) formally entered into force in July 2018, setting clear targets for the reduction of waste and establishing a roadmap for waste management and recycling over the next 15 years.

Key elements of the revised waste proposal include:

- A common EU target for recycling 65% of municipal waste by 2035.
- A common EU target for recycling 70% of packaging waste by 2030.
- Recycling targets for specific packaging materials:
 - Paper and cardboard: 85%;
 - Ferrous metals: 80%;
 - Aluminium: 60%;
 - Glass: 75%;
 - Plastic: 5%;
 - Wood: 30%.
- A binding target to reduce landfill to a maximum of 10% of municipal waste by 2035.
- Separate collection obligations extended to include hazardous household waste (by end of 2022), bio-waste (by end of 2023), textiles (by end of 2025).
- Minimum requirements for extended producer responsibility schemes to improve their governance and cost efficiency.
- Reinforcement of prevention objectives in particular, requiring Member States to take specific measures to tackle food waste and marine litter as a contribution to achieve EU commitments to the [UN's SDGs](#).

2019 saw two new countries join the programme, with the first zero waste cities announced in Germany and Bulgaria. These pioneering decisions taken by cities in two very different contexts - Kiel in Northern Germany and Svilengrad in Southern Bulgaria - showcase both the appeal of zero waste and, more importantly, that this approach can be successfully applied in a diverse range of communities. Kiel marked the announcement of their commitment by hosting the most recent [European conference on Zero Waste Cities](#), and have since gone on to develop a [robust zero waste strategy](#) to guide the implementation of their goals over the next 15 years.

Furthermore, 2019 marked the adoption of a landmark piece of legislation to stem the flow of plastics into our environment and oceans by the European Union. [The Single-Use Plastics Directive](#), a key component of the [European Strategy for Plastics in a Circular Economy \(2018\)](#), aims to prevent and tackle plastic waste by, among other things, phasing out unnecessary single-use plastics, introducing economic incentives to reduce consumption and help the transition to reusable systems, and establishing high collection rates and extended producer responsibility schemes (EPR). However, [research conducted by the Break Free From Plastic \(BFFP\) movement in July 2020](#) showed that only a few countries have adopted measures to transpose the Directive so far; whilst in many countries, the transposition process has not started and/or little information is available on the expected transposition process.

▶ Read more on the Single-Use Plastics Directive, including guidance on what national decision-makers can do to implement the measures outlined by the EU.

▶ For local municipalities, we have also developed a shorter brief on the policies that can be implemented at the city-level, which can play a big part in helping a national government achieve its SUP Directive targets.



How things look today



In 2018, the latest year with official European Union data at current time of writing, 492 kg of municipal waste was generated per capita. This only represents a slight decrease from 2005, when the average was 515 kg and even a stagnation when looking at the past ten years. The amount of waste recycled (material recycling and composting) rose from 37 million tonnes (87 kg per capita) in 1995 to 104 million tonnes (233 kg per capita) in 2018 at an average annual rate of 4.2%. The overall share of recycled municipal waste rose from 19% to 47% during this time period.

However, this does not tell the full story.

Whilst recycling and composting have increased during this period, the quantity of waste that is sent to incineration has increased by 285 kgs per capita in these 13 years. The volume of natural resources extracted and manufactured to fuel our over-consumption patterns in Europe today has significantly continued to rise. Given the destructive damage this causes to our biodiversity systems and subsequent harmful Greenhouse Gas (GhG) emissions that arise throughout a material's life cycle, the need for more reuse, repair, and redesign - rather than recycling - becomes increasingly evident.

2020 marked an important moment for waste management within the EU, with the first deadline for Member States to achieve the recycling targets outlined in the amended 2018 Waste Framework Directive. At the time of writing, more than half of Member States had neither transposed the Waste Framework Directive into their national law nor were on track to achieve the set target of 50% recycling by 2020.

Additionally, it becomes increasingly urgent to shift the focus towards the upstream part of the waste hierarchy, through ambitious waste prevention measures. Although it is

considered as the overarching priority, EU legislation contains very little obligations for member states to reduce the amount of produced waste. The Single-Use Plastics directive paves the way by phasing-out a certain number of items but when it comes to overarching legislative framework, as there is for recycling through the targets, the EU certainly doesn't live up to the expectations it created through its circular economy packages.

It is clear that urgent and meaningful action is needed across Europe to meet the goals set by the EU, which have been designed as a key tool to steer Member States towards a circular economy.

The data and evidence we see from the municipalities within our programme provide several examples of how to achieve – and go above and beyond - the minimum requirements set by the EU, showcasing the path for others to follow as Europe transitions towards a circular economy.



Read about the latest updates on the European Union's key legislation on waste, what this means for local municipalities, and how Zero Waste Cities often go above and beyond the required targets.



Read about Zero Waste Europe's recommendations for an integrated Waste Prevention Framework in the European Union.



When and what: A timeline for the implementation of new measures and recycling targets.

The Zero Waste Cities Programme in 2020



Currently, there are just under 400 European municipalities which have committed to be a zero waste city within Zero Waste Europe's programme. The vast majority of these municipalities can be found in Italy, where the success of the zero waste movement can be summarised briefly in 2 main points:

The first is down to the success of [Zero Waste Italy](#). Led by President and Goldman Environmental Prize Winner Rossano Ercolini, the work of Zero Waste Italy has inspired a vast number of municipalities across the country which implement some of Europe's best performing waste management systems, supported by a network of volunteers who provide support on the ground.

The second reason, which is a key defining element of most zero waste cities, is that many Italian municipalities have been able to implement ambitious zero waste strategies because they have not been restricted by a long-term waste incineration contract. Without contractual obligations to continually generate waste so that these kinds of technologies can maintain financial sustainability, municipalities have been free to adopt effective and impactful collection, recycling, and prevention policies that were co-designed with the local community. The success of Zero Waste Italy is now spearheaded by the first-ever [Zero Waste Research Centre](#) in Capannori, which coordinates zero waste efforts and groundbreaking research within the local area and across the country.

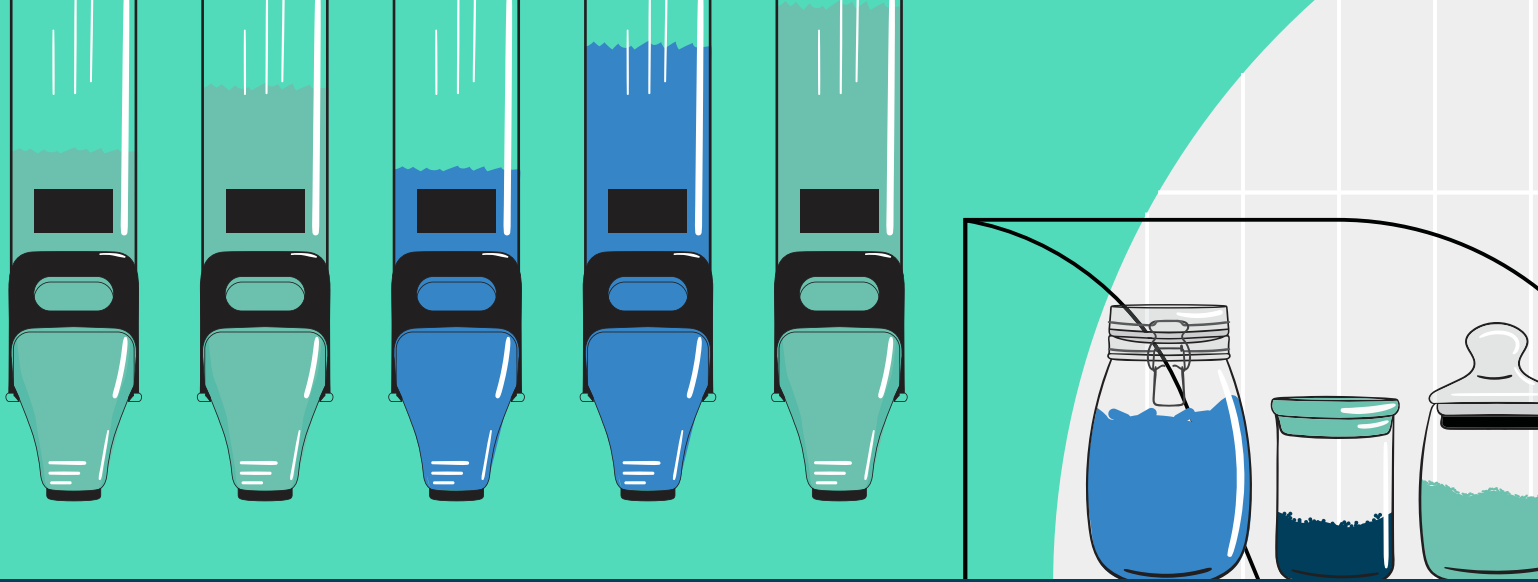
However, progress and success are by no means limited to Italy. Zero Waste Europe's Slovenian member, [Ekologi brez meja](#), has been [building its own network of zero waste cities](#). There are currently 9 municipalities in the network covering 18% of the national population, including the first European capital zero waste city, Ljubljana. At 68%, Ljubljana has the largest share of separately collected waste among all European capitals.

Furthermore, a large number of Zero Waste Cities also can be found in Spain, predominantly in the Catalonia and Basque regions. Croatian and Romanian municipalities have continued to commit to become zero waste over the past decade, blazing a path for others to follow in their respective countries, with 12 zero waste cities in each country. In 2019, Svilengrad (Bulgaria) and Kiel (Germany) became the first zero waste cities in their countries, showcasing the diversity of the zero waste cities model and its successful application to a wide range of contexts. This has been further showcased in 2020 with new zero waste commitments from municipalities in Ukraine and the United Kingdom.

From the first zero waste municipality in 2007, we have seen a continuous growth in awareness and adoption of the zero waste model, that has coincided with greater awareness of both the environmental crisis we are facing and the importance of the circular economy to help address these challenges. By 2012, the programme had 107 municipalities across 3 countries. Fast forward to 2016 and over 200 more municipalities had made zero waste commitments, including in Croatia and Slovenia for the first time. Zero Waste Cities also emerged in Hungary during this period, although they are no longer part of the programme due to changes in waste management responsibilities and broader political challenges.

Today, there are just under 400 municipalities within the zero waste cities programme across 9 countries.

Currently, we can say that **1.77% of the collective EU, UK, and Ukraine's population live in a zero waste city. Over the next 5 years, our goal is to bring this to 10%**. We are working with our network of members and close partners to help turn the vision of a zero waste future into a reality. The expertise and tools to make this happen already exist. What we need now is to transform this into real action on the ground in communities and in the offices of those elected to represent.



The foundations of a Zero Waste City

Enzo Favoino, Scientific Coordinator for Zero Waste Europe, has played a central role in the growth of the Zero Waste Cities movement in Europe. Enzo has provided technical advice and practical guidance for both activists and municipalities all across Europe. We asked him to describe the importance of zero waste cities and the key elements behind this approach. Here it is, in Enzo's own words:

"Over the last 15 years, the zero waste practice has been consolidated as the perfect toolkit to turn the vision of circular economy into operational reality. Zero waste cities and communities have largely anticipated the EU's circular economy agenda, and have shown beforehand the viability of its ambitious targets.

Zero waste municipalities have acted as trailblazers for others, consolidating the principles for operationally optimised, cost-competitive schemes. Key practices within these strategies include the separate collection of organics, an increased recovery of dry recyclables, and the implementation of Pay-As-You-Throw (PAYT) schemes.

One key element to highlight is residual waste audits, as they have disclosed materials that are hard to recycle/reuse, and this is a mighty powerful tool in generating messages to industry representatives, reminding them of their responsibility for

redesigning such products that cannot be reused, repaired or recycled. Furthermore, these audits have been used to promote new business models that provide solutions to the most problematic materials, such as centralised washing services for cloth nappies and rent services for reusable tableware.

Whilst separate collection for recycling and composting has been the cornerstone for local implementation of zero waste programmes (it's "low hanging fruit"), lately we have seen a growing focus on reduction and reuse. This will surely be the next step to make a dent in the already minimised amount of residual waste, so as to make further progress towards the magic number: "zero". Propelled by the new vision of a circular economy, an increased emphasis on reduction and reuse is the foundation of a long-term roadmap to sustainability.

In the meantime, optimised kerbside and PAYT programmes are helping us minimise disposal and retain materials/resources in the loop in their best status for as long as possible. Municipalities that already achieve 80-90% separate collection rates, and consistently less than 100 kgs/person residuals a year (in both rural and urban areas), show us that not only it is sensible to adopt a zero waste approach, but that it is also possible and effective. This is the one message I wish anyone reading this report would take with them."

The challenges and barriers preventing faster progress

2020 has obviously been a year like none other in modern times, as the COVID-19 pandemic has completely transformed society and our everyday lifestyles. As we continue to adjust to the realities of managing the pandemic, the importance of zero waste has never been more relevant, with the biodiversity and climate crises continuing to worsen at an alarming rate.

The initial spread of COVID-19 around the world created several significant challenges against the core foundations of local zero waste strategies, including the collection of separated materials from homes by waste management companies; a perceived belief in the safety of burning this kind of waste, particularly medical waste; an increase in single-use packaging instead of reusable or refillable options; and a push by certain companies to halt progress towards reusables, prolonging their business model of single-use packaging.

Yet as time has gone on, science and common sense are beginning to prevail when it comes to the compatibility of zero waste systems within a healthy and safe society during the COVID-19 pandemic. In April 2020, the European Commission published [guidelines](#) that reaffirmed the safety and importance of continuing separate collection and sufficient waste management standards, as well as the need for Member States [to align their economic and social plans with the existing circular economy framework](#). National governments and local authorities have followed this guidance and once again established full waste management services.



Check out Zero Waste Europe's policy paper highlighting how reusable packaging systems remain a safe and clean option throughout the COVID-19 pandemic.

Throughout Europe, a stubborn resistance against moving away from the status quo of incinerating large volumes of waste remains. And it remains despite increasing evidence, year after year, of the negative impacts that such residual waste treatment facilities have both on human health and the natural environment.

In 2018, the European Union amended the [Landfill Directive](#), which now obliges Member States to limit the amount of municipal waste due to be landfilled to 10% or less of the municipal waste generated at any given year by 2035. Meeting the target is a challenge in itself: not only is it challenging to apply it across all of the EU27, but the way it is defined and calculated (in any given year and defined as a percentage) may also cause unwanted consequences. One of these consequences is that the 10% landfill maximum target could generate further interest from governments to invest in waste incineration as a perceived way of minimising landfilling.

The risk with this, as we have seen from previous examples across Europe, is that it could consequently create a lock-in situation. Waste would be compelled to go to incineration, with local authorities having little to no incentive to adopt ambitious reuse or recycling measures. This would contravene the principles and strategic goals of the Circular Economy Package, which gives a clear priority to reducing waste and maximising material recovery.



Read Zero Waste Europe's paper to fully understand why the 10% Landfill target could contradict the purpose and vision of the EU's circular economy agenda.

However, the tide is turning in Europe, as we begin to enter the age of decommissioning.

Governments are increasingly recognising the problems that incompatible waste incineration brings to the circular economy and decarbonisation agendas. As a prime example, let's look at what is happening in Denmark.

Denmark is Europe's top waste burner. Incineration accounts for about a fifth of district heating and about 5% of its electricity. Denmark has 23 incinerators capable of burning 3.8 million tons of waste a year, but due to the efficiency of the national recycling system, the country needs to source more and more trash from abroad. It imported nearly 1 million tons in 2018, mainly from the UK and Germany.

Recognising that this is simply incompatible with Copenhagen's climate goals (Denmark wants to cut its GHG emissions to 70% below 1990 levels in the next decade

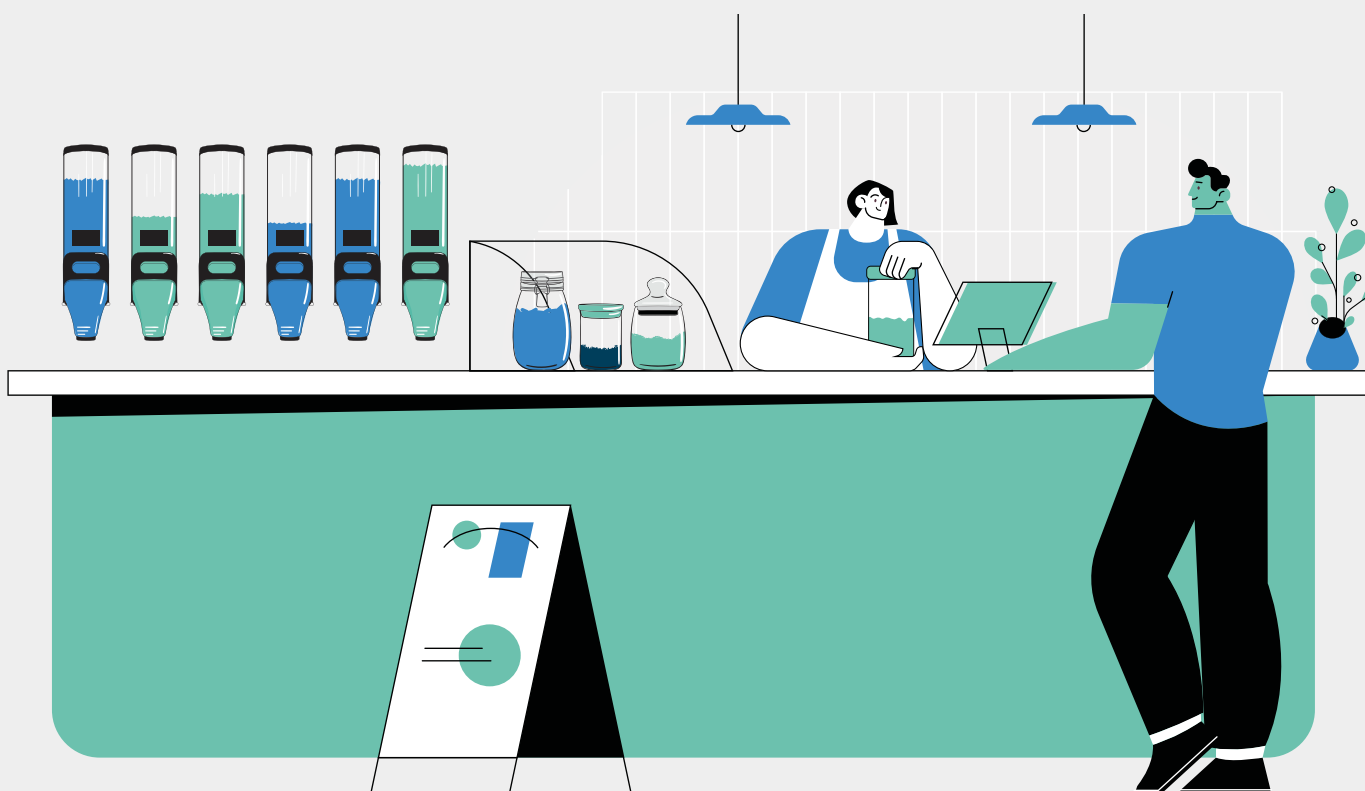
under a climate law adopted last year), in June 2020, the Danish national government agreed on a plan to reduce its incineration capacity by 30% over the next decade. Denmark intends to close 7 incinerators, vastly reduce the amount of waste it imports, and also introduce a recycling system with 10 different streams of waste.

As governments and citizens increasingly wake up to the realisation that incineration is not a sustainable disposal method, whether due to the lock-in effect they create for continued waste generation, or the increasingly high carbon footprint of such technologies when compared to renewable energy sources, we can expect more and more commitments similar to what we have seen in Denmark recently.

The transition away from traditional waste disposal methods may seem daunting at first. However, the Zero Waste Cities model and examples from the programme showcase that, when there is political leadership and sufficient flexibility within the system to adopt the right policies, local strategies can be implemented which vastly reduce the volume of residual waste. This subsequently helps begin the phase out of environmentally-harmful disposal methods, whilst also reducing costs for local authorities and protecting the health of the environment and residents.



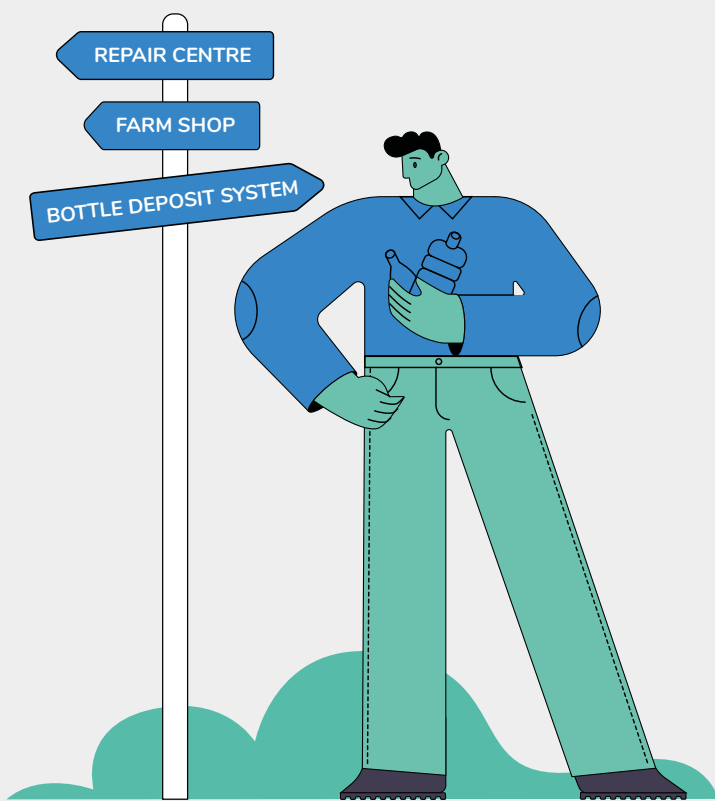
To help with this transition, Zero Waste Europe prepared a report that defines an approach based on Material Recovery and Biological Treatment as a bridge strategy for authorities to manage residuals within a circular economy.



Zero Waste Cities - a global movement

It must be noted that this report focuses solely on the municipalities who have committed to go zero waste in Europe, not acknowledging the wider global movement of zero waste cities that continues to grow. Through our sister organisation, GAIA, municipalities and cities across the globe are being supported to develop their own local zero waste strategies and solutions.

From San Fernando to San Francisco, Kerala to Kamikatsu, the zero waste cities movement is a worldwide one that continues to grow, recognising the global and interconnected nature of the waste crisis, as well as the shared values and aspirations which unite us across continents.



"Zero waste is vastly expanding and currently being implemented within cities across very different regions. It is developed mostly in Asia, Europe and North America, but also now it is building up in Africa and Latin America too. This growth is proving how zero waste is both an effective goal to achieve change and also a set of guiding principles, providing a different flavour when applied in each local context, yet sharing the same vision worldwide.

Zero waste systems are proving to be a way to address the diverse and pressing needs cities face today. Local zero waste strategies provide solutions to some of the biggest challenges we see around the world - climate mitigation and adaptation, the collapse of waste disposal systems, a need to optimise municipal budgets, a demand from communities for a greater voice and say in decision-making, growing pressure to recognize the role of informal recyclers and include them in formal waste management systems, as well as the urgent need for clean, unpolluted air. These have all been key drivers of the growth in awareness and implementation of zero waste in different cities across Asia, Africa, Latin and North America.

In light of the present, we believe that the future of zero waste will be connected mostly with its human side. For example, the role zero waste strategies play in helping build regenerative economies that strengthen local material cycles and a sense of community, creating local jobs in the process and putting environmental justice at the center of policy-making."

Cecilia Allen, Global Projects Advisor, GAIA



The Zero Waste World website hosts these and many more case studies on the communities that are leading the way on zero waste today.

Country specific focus

To delve deeper into the story of European Zero Waste Cities and to understand the methods behind the most successful practices, this report is now going to examine the specific countries where zero waste cities in our programme can be found. The stories and experiences from each country are told by those who have been on the ground for several years now, helping municipalities design and implement zero waste strategies. Each country section includes both a focus on the zero waste cities, as well as a comparison to the broader context nationally.

Throughout this chapter, we are measuring success by two key indicators that form the foundations of a local zero waste strategy, the volume of waste recycled and the volume of residual or total waste generated. Of course, we recognise that zero waste is much more than just these two metrics. We know that recycling is only part of the solution, something that alone is not enough to fix the problem of waste. Championing those who only recycle well helps perpetuate a system of over consumption and production, which is why we have included the second metric regarding total waste generation and more broadly, why zero waste cities go beyond just recycling, setting goals for waste reduction as a whole.



Listen to Joan-Marc Simon (Executive Director of Zero Waste Europe) and Flore Berlingen's (Former Director of Zero Waste France) interview about the challenges and pitfalls of recycling.

To provide a general overview and summary of a country's waste management system, we will use the metrics of recycling (or separate collection rates) and waste generation throughout this chapter. However, recognising the limits of this approach, the following chapter in this report highlights some of the best waste prevention practices from cities and regions across the continent.





Italy

Written by Rossano Ercolini,
President of [Zero Waste Italy](#)

Italy was the **birthplace of zero waste cities** in Europe and continues to be **home to the highest number of municipalities** who are implementing zero waste strategies today. Zero Waste Italy, which **started in 2003**, has been at the heart of this success. Nationally, Italy's source **separation rate is approximately 55,5%**, whereas in 2003 it was just 17%. Zero Waste Italy now works with **311 municipalities**, covering over 6 million inhabitants nationwide.

In 1995, the Tuscany Regional authority wanted to build two incinerators in the province of Lucca and in the Municipality of Pietrasanta. By promoting a movement called "don't burn our future" we, a community group concerned with the environmental and social impact of having these incinerators, defeated the proposal. Throughout the process, and a key factor of our success, was our continued engagement and support from [Professor Paul Connett](#), who has since become our close friend and activist.

After defeating the proposed building of the 2 incinerators, we started promoting sustainable alternatives and in 2007, under pressure from the community the mayor of Capannori, Giorgio Del Ghingaro, accepted our proposal to declare Capannori the first Italian zero waste municipality and subsequently the province of Lucca became the first Italian province free from any incinerators.

Since 2007, we have seen many other municipalities want to know how to avoid incineration and follow in Capannori's footsteps. Growth and awareness in the zero waste philosophy has really accelerated since 2010, when there were only 25 Italian zero waste municipalities, to 114 by the end of 2013. This is due to a number of reasons. Firstly, once Capannori began achieving very high results in source separation, we saw a growth in the number of municipalities who realised the benefits and impact of zero waste strategies. Secondly, during this period I was campaigning all over Italy with people like Paul Connett, telling the success stories of Capannori and others, including that of Treviso. We showcased to municipalities who were already interested in avoiding new landfills and incinerators, that local strategies could easily be implemented that reduced waste being sent for incineration and helped support the local economy simultaneously. Thirdly and finally, it was after I was awarded the Goldman Environmental Prize that awareness of our work really grew and the network of Italian ZW municipalities subsequently reached today's number of 311.

Zero Waste Research Centre

At the heart of our continued success today is the first ever [Zero Waste Research Centre](#) in Capannori and a key actor within the Capannori Science Park (where it is possible to find a showroom of new products and a green corner on new materials) has been a winning card in involving EPR, factories, local companies and national.

The work of the Zero Waste Research Centre started in 2010 with a study into what were then non-recyclable coffee capsules. We used this data to successfully push Lavazza, one of the biggest coffee producers in Italy (a coffee-loving country) to switch to biodegradable coffee capsules, and have also promoted the work of start-ups like "Funghi Express" that grow mushrooms from used coffee grounds. Another successful project of the Centre has been one where we helped demonstrate how to produce large pallets from the pulp waste produced by paper mills which recycle recovered paper.

The Zero Waste Research Center adopts a bottom-up approach to facilitate new zero waste design and innovation. We regularly involve local students within our work. Successful initiatives in the past include and now during the COVID-19 pandemic we are developing a project for the production of washable, reusable masks together with the social cooperative Eta Beta. Today, the Zero Waste Research Center is ready to promote our own Zero Waste Academy through the collaboration with many local and regional universities. **The Zero Waste Research Center is an example of citizen science where democracy from below is a kind of springboard for an ecological revolution.** Both Capannori and the Research Center office / showroom receive regular visits from tv and media outlets, as well as delegations coming from across all of Italy and around the world. The people of Capannori are extremely proud of this and the leading role they play as a zero waste champion.

Impact

Our work as **Zero Waste Italy** has proven that zero waste is **not just talking about negatives and saying no to things, but rather it is about more YES** - yes for the environment, yes for public health and yes for the economy.

For example, in Capannori (46,000 inhabitants) we have helped secure over 70 new jobs - created through the implementation of a door-to-door waste collection system, in the creation of 6 local repair & reuse centres, and in the search for a new, effective EPR (Extended Producer Responsibility) system. Meanwhile in Lucca (92,000 inhabitants) over 70 new jobs have been created through the implementation of their door-to-door collection system.

We have shown that zero waste is better not only for the environment but also for the local economy. These examples, together with the region of Treviso, where there is nearly 1 million inhabitants but has a source separation rate higher than 87%, have helped to build enormous interest in the zero waste cities approach within Italy and beyond. We see the evidence of this through the number and diversity of visitors we have at the Zero Waste Research Centre each year.

Many other Italian municipalities have followed the example of Capannori and now there are 311 representing about seven million inhabitants. **We can say that in Italy zero waste is a revolution in progress!** By monitoring the Italian zero waste municipalities, we have seen that about 80% of the municipalities are doing well and making good progress. These municipalities are not only small or medium-sized ones, but also include other, larger municipalities, such as Parma, Livorno, Perugia, Mantova, Benevento and more.

When we started Zero Waste Italy in 2003, source separation was 17%. Today the rate is at 55%. From north to south Italy, municipalities both small and big are promoting and implementing zero waste best practices."

Italian National Context

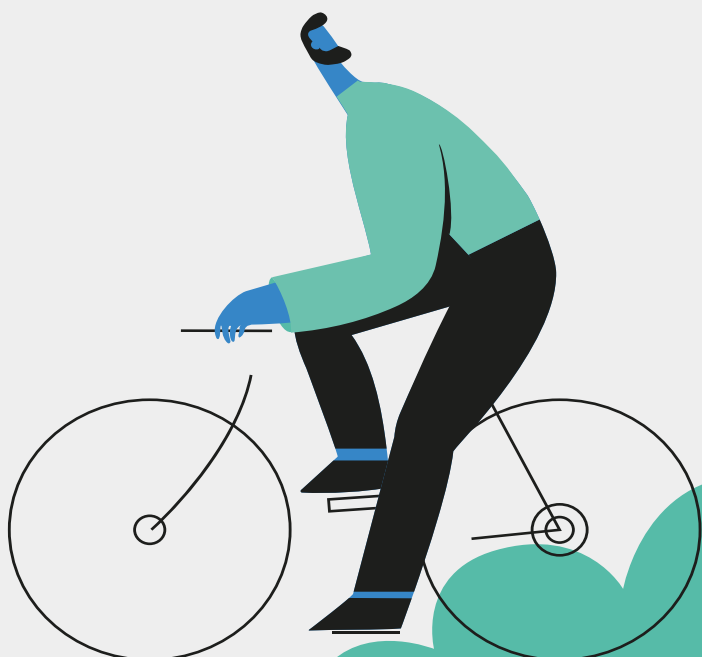
According to 2018 data, the top 4 provinces in Italy have a separate collection rate of above 80%, including the Treviso 25 region, managed by our zero waste champion Contarina, the waste management company for the Treviso area within the Veneto region. Furthermore, over 100 Italian municipalities achieved separate collection rates of 90% and above, with another 1168 municipalities achieving above 80%.



Fellow Break Free From Plastic members, Legambiente, have compiled an incredibly useful set of rankings that showcase the best performing Italian municipalities. This includes the municipalities that participated in Legambiente's competition and which have, in addition to a percentage of separate waste collection equal to or greater than 65%, a per capita production of undifferentiated waste (given by the sum of the dry residue and from the unrecovered portion of bulky waste) of less than or equal to 75 kg/year/inhabitant.

Across Italy, it is becoming increasingly common for municipalities to be producing 50 kgs of residual waste per capita, with data below 100 kg per capita widespread. Data from 2018 shows that 2406 municipalities produced less than 100kgs, around 25% of all Italian municipalities, with 1029 achieving below 70kg. Furthermore, the top 10 performing municipalities with a population of over 15,000 all separately collect between 90 and 86% of waste, together with residual waste per capita between 35 and 53kg.

Nationally, in 2018 Italy recycled 49.8% of its municipal waste, with the separate collection rate at 58.5%, slightly above the EU average for that year and just below the 50% recycling target for 2020. For bio-waste specifically, Italy was the 7th highest performing EU country, recycling 105 kg per capita, with the EU average of just 83. Out of 107 provinces in Italy, 48 were separately collecting above 65%, with over 3200 municipalities, out of roughly 8000 nationwide, achieving rates above 70%.



Spotlight on Capannori

As mentioned above, the municipality of Capannori based in Tuscany, with a population of just over 46,000, became the first zero waste city in Europe back in 2007 and remains a zero waste champion to this day. Not only does the municipality cooperate regularly with the Zero Waste Research Centre, Capannori also leads by example in terms of its performance. In the first 10 years since it adopted its zero waste goal, the following results were achieved:

- 40% of waste reduction;
- Separate collection rate to 82% ;
- Residual waste per capita reduced by 57%;
- Waste tariffs for residents have been reduced by 20%;
- 93 tonnes of items were dropped at the Reuse Centre.

In 2018, the municipality separately collected 82% of its waste for recycling, with residual waste generated per capita at 82.7kg and a total MSW per capita volume of 407kg. This exceeds the already extremely high rates achieved locally. All ASCIT municipalities (ASCIT is the public waste management consortium made up of 6 municipalities, of which Capannori is the largest, serving 80,000 inhabitants) have an average separated collection at 75%.

Furthermore, there are approximately 7000 households in Capannori which home compost their organic waste now. The growth in awareness and ability to home compost has been led by the Zero Waste Research Centre, recognising the lack of a local composting plant in the region. Currently, all organic waste is sent to a treatment plant in Bergamo, further north in Italy within the Lombardy region. Thanks to an increased number of households composting at home, the volume of organic waste transported to the plant in Bergamo has dropped to only 4,500 tons per year. In the meantime, an agreement has been reached with the Municipality of Livorno to build a composting plant in the Livorno area.

Over the past 10 years, approximately an extra 70 new jobs have been created in the fields of repair and reuse. Capannori now has five repair and reuse centers, including a new one that specifically repairs electronic devices. In the past couple of years, research done by the independent newspaper 'Il Tirreno' concluded that Capannori's citizens paid the cheapest fee for waste management within Tuscany for a municipality over the size of 25,000. The Pay-As-You-Throw system that is implemented locally, together with the support provided by the Zero Waste Research Centre, has resulted in participating families in the Zero Waste Family Challenge saving on average 605 Euros through the variable fee in their waste management bill. Finally, whilst also saving costs internally, the municipality has generated approximately 900,000 Euros in revenue from recovered materials such as paper, glass, plastic polymers and metals.

"In the words of Danilo Dolci, a leading sociologist, I am someone who tries to translate utopia into a project. I don't ask myself if it is easy or difficult, only if it is necessary. Implementing a zero waste strategy is needed to improve people's lives. When something is necessary, it may take effort and time, but it will be done. So, this is why zero waste is a priority for me."

Luca Menesini, current Mayor of Capannori

Spotlight on Contarina

The waste management company Contarina has long been a zero waste champion, both in Italy and Europe. Contarina is responsible for the management of waste from the municipalities belonging to the Priula Consortium, in the Treviso province that sits within the wider Veneto region, in an area covering approximately 1,300 square kilometres with about 554,000 inhabitants. **In 2017, municipalities under Contarina's jurisdiction produced just 56kgs per capita and recycled 85%.** Treviso itself, with a population of nearly 90,000, produced just 66.9kgs of residual waste per capita in 2019 whilst also collecting 85% of waste to be recycled.

Contarina's integrated waste management model has the circular economy embedded within it, based upon 5 key features: kerbside collection of waste, a progressive Pay-As-You-Throw fee, effective communications with and to citizens, environmental supervision checks and an accessible information database regarding the local waste management system. Currently, the average household fee for residents within Contarina's operating region is 195 EUR per year.

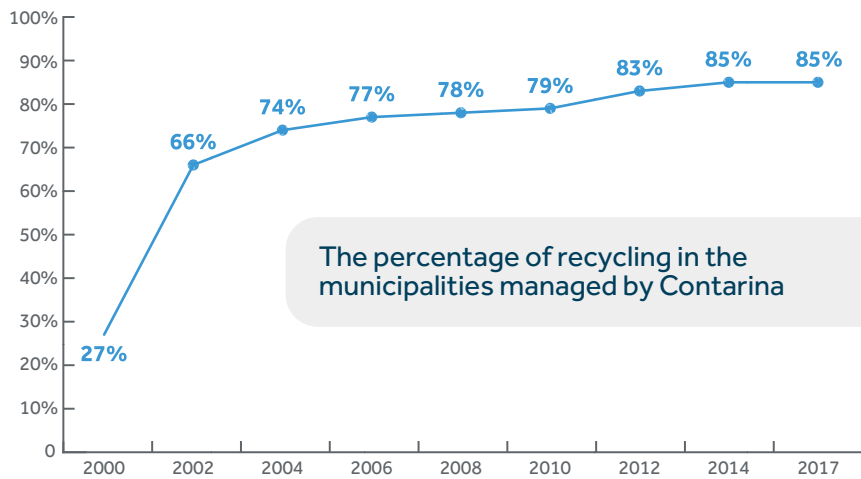
Not satisfied with its current results, Contarina has set themselves a goal of reducing residual waste from 58kgs per capita in 2017 to just 22kgs by 2022.

Year	Separately collected waste for recycling	Total MSW produced per capita (kg)	Residual waste produced per capita (kg)
2010	79,33%	371,96	76,89
2015	85,26%	393,63	58
2019	85,93%	400,28	56,32

Data from the past decade from Contarina regarding the performance of its zero waste strategy.

"In a historical moment like the present one, in which all of us are called to reflect on the manufacturing systems adopted so far, it is essential that companies become promoters of a new model, such as that of the circular economy, oriented to the reduction and enhancement of waste materials and their industrial reuse. It is on the basis of these principles that we at Contarina have developed our corporate strategy over the years, aware of the strong impact generated by our business on our communities and the importance of investing in increasingly innovative waste management models for the well-being of future generations."

Mr. Sergio Baldin, President, Contarina



Source: Contarina 2017, Rapporto Rifiuti ISPRA 2017



A further overview of Contarina's waste management system and their results can be found in this presentation.



Slovenia

Written by Jaka Kranjc, Secretary General, [Ekologi brez meja](#)

There are 9 municipalities within the zero waste network organised by Ekologi brez meja (Ecologists without borders) **covering 18% of the national population**, including the first European capital zero waste city, Ljubljana. At 68%, Ljubljana achieves the largest share of separately collected waste among all European capitals.

The network of zero waste municipalities in Slovenia is coordinated by the Zero Waste Slovenia programme, with staff at EBM playing a mentoring role with municipalities, helping guide and support officials as they develop local zero waste strategies. Good examples of zero waste are embedded within these 9 municipalities - from the Depo which is making backpacks out of old car airbags to the Ljubljana reuse centre which now sells an average of 185 repaired items each day. Each municipality achieves well above the EU required target for 2020 and most have done so for several years through the implementation of a highly effective door-to-door separate collection system. Zero waste municipalities in Slovenia must commit to [the 10 key principles](#) outlined by Zero Waste Slovenia.

The Slovenian national context provides a number of interesting lessons for those examining their success story, which can be replicated elsewhere in Europe to inspire

further growth of zero waste cities. Firstly, national legislation explicitly mandates for regular door-to-door collection of bio-waste and other key materials, which has been the case since 2011. As we know, the separation of waste at home and subsequent positive effect this has on waste reduction and recycling is a key foundation of the circular economy. Having this mandated in national law is a crucial reason why the country now has one of the highest recycling rates in the EU.

Secondly, one of the key defining factors within the Slovenian success story is the flexibility within the national municipal solid waste system. Low waste incineration capacity, without the subsequent long-term contracts and need for continuing waste generation, has provided municipalities with the freedom to adopt ambitious reduction and prevention policies, backed up by continued assessment of the residual waste to enable the system to be regularly optimised.

Municipality	Separate Collection % (2018)	Future target	Total amount of waste per capita (2018)	Future target
Vrhnika, Borovnica, Log-Dragomer	83%	Being updated	384kg	Being updated
Gorje	75%	80% by 2025	266kg	200kg by 2020
Slovenske Konjice	74%	77% by 2025	315kg	283kg by 2025
City of Ljubljana	68%	78% by 2025	358kg	280kg by 2025
Bled	67%	80% by 2025	544kg	300kg by 2020
Radovljica	65%	70% by 2026	358kg	300kg by 2026
Žalec	62%	80% by 2027	356kg	300kg by 2027
EU Average	47% (recycling rate)	65% recycling by 2035	489kgs	Not set

An overview of the performance of Slovenian Zero Waste Cities. Data provided by EBM.



For more information on Ekologi brez meja's work with municipalities, check out their report from 2019.

National Context

In 2019, 8.4 million tons of all types of waste were generated in Slovenia, of which almost 5.1 million tons (or 60%) was construction waste. The total amount of waste generated in Slovenia in 2019 was not much higher than in 2018 (by 1%), but the amount of municipal waste was higher by 5% than the previous year. In 2019, just over 1 million tons of municipal waste was generated in Slovenia and accounted for 13% of all waste generated this year. In the same year, the population of Slovenia produced an average of 514 kg of municipal waste, 19 kg more than in 2018.

Of the total amount of municipal waste generated in 2019, 73% was collected separately, an increase from 71% in 2018.

The rise in the volume of separately collected and recycled materials in Slovenia over the past decade has been remarkable. Around 2008/9, Slovenia was ranked mid-table within the EU28 regarding the amount of waste recycled and composted, at just over 40%. By 2018, it had risen up to second in the EU, with a national average of 58.9%, behind only Germany and way above the EU average of 47%.





Romania

Written by Elena Rastei,
Coordinator, [Zero Waste Romania](#)

There are currently 12 municipalities in Romania that have committed to and are in the process of becoming zero waste, covering a population of just under 700,000. The biggest municipality in the network is Iași, which has a population of over 300,000. With a total population of 19.41 million, due to the great work of Zero Waste Romania in building their network of zero waste municipalities, **we can say that 3.41% of the current population nationally live within cities undergoing a process to become zero waste.**

Given the changing context at the local and regional level, there have been a number of new additions to the zero waste city network in Romania, replacing municipalities who had previously made zero waste commitment but have since regressed or decided against continuing on this path due to political changes. However, there have been some extremely impressive results, in particular from the municipalities which have continued to work on their zero waste strategies for several years now. All Romanian zero waste cities have set future targets for waste reduction and recycling, whilst also committing to implement the separate collection of waste including biowaste and a Pay-As-You-Throw system. Also, during the process, some mayors rejected solutions such as incinerators in order to stay in the program.

At the very beginning of the journey the will and motivation of mayors regardless of political color is the key ingredient in the success of a city in its journey towards a zero waste circular economy.

In a country with several waste related infringements, communities adopting zero waste represent a spark of hope that hopefully will inspire people at all levels and place Romania on a good practice European map.

We could see citizens getting actively involved when given the proper infrastructure, which contradicts a common narrative in Romania - that citizens are not ready yet for the separate collection system. Responsible citizens, mayors and waste operators have proven this narrative false. Models brought by the 12 zero waste communities break a pessimistic country pattern and show to the world that with the right ingredients, such as political will, efficient infrastructure, prevention measures, education, sanctions and bonuses, Romanians can become part of highly efficient waste management systems. Their example is replicable and hopefully will spread country wide and become the much needed norm.

The holistic approach of our zero waste city certification process, involving all major stakeholders, from mayors and waste operators to waste experts and citizens who are now proud to live in these communities, is the key in achieving the ambitious targets in the years to come.

Municipality	Year of ZW commitment	Total MSW generated per capita (2019)	Reduction of MSW since ZW commitment	Separate collection % (2019)	Future targets
Sălcea	2018	77	55.00%	75.00%	90% landfill diversion 40 kg residual/cap/year
Targu Lapus	2014	80	20.00%	75.00%	90% landfill diversion 70 kg residual/cap/year
Valea lui Mihai	2020	89	TBD	50% (2020)	90% landfill diversion 40 kg residual/cap/year
Cociuba Mare	2019	78.34	30.00%	45.00%	90% landfill diversion 40 kg residual/cap/year
Mizil	2017	104.47	32.00%	33.00%	90% landfill diversion 70 kg residual/cap/year
Brănești	2020	251.81	TBD	17.00%	90% landfill diversion 40 kg residual/cap/year
Iași	2017	302	TBD	15.69%	90% landfill diversion 100 kg residual/cap/year
Oradea	2017	389	TBD	11.89%	90% landfill diversion 100 kg residual/cap/year
Comănești	2020	224	TBD	10.13%	90% landfill diversion 70 kg residual/cap/year
Roman	2019	340	TBD	10.00%	90% landfill diversion 100 kg residual/cap/year
Codlea	2020	321	TBD	10.00%	90% landfill diversion 100 kg residual/cap/year
Vetrisoaia	2020	51	TBD	0.00%	90% landfill diversion 20 kg residual/cap/year

Overview of Romanian Zero Waste Cities. Data provided by Zero Waste Romania.

National Context

According to Eurostat, Romanian municipal waste was 272 kg per capita in 2018, under 200 kg compared to the EU average of 492kg. Eurostat also calculated Romania's national recycling rate in 2018 to be 11.1%, down from 14% in 2017 but up from just around 1% back in 2009. There are no high capacity Waste-to-Energy incinerators within the country, with about 5% of municipal waste being sent to cement kilns and the rest of non-recovered waste sent to landfills. The zero waste cities in Romania have all committed to send no waste to cement kilns as part of their zero waste strategy.



Read the story of Salcea, a small Romanian municipality which managed to quickly rise from almost no waste recycling to 40% in just 3 months, whilst also reducing their overall waste generation by 55%.



Spain

Written by Rosa Garcia,
Director General of [Rezero](#),
and Daisee Aguilera, Coordinator
of [Alianza Residuo Zero](#)

In Spain we have 2 regions which have especially advanced towards zero waste models. Over the last decade, almost 100 municipalities in Catalonia and the Basque Country have taken a leading role and began to implement their own local zero waste strategies. However, it is an exciting time in Spain as other regions in the country, such as Madrid and the Balearic Islands, are eager to become zero waste municipalities too and seek to develop ambitious policies that go beyond just traditional waste management. In the coming months, we are excited that we can expect to work alongside a number of municipalities in these regions to reaffirm their commitment to zero waste through the new [Zero Waste Cities Certification](#) being developed by Zero Waste Europe.

On the legislative side, Catalonia, Navarra and the Balearic Islands have worked intensely over the past 2 years to develop and put into practice specific laws that accelerate the transition towards a circular economy. For example, this includes actions that are now mandatory such as door-to-door collection and pay as you throw incentives. In the Balearic Islands there are four municipalities which were under 120kg/citizen/year in 2018 - Esporles, Bunyola, Puigpunyent, Mancomunitat de Raiguer.

Finally, Spain has begun the transposition process of the new package of EU waste laws, and a draft national law has recently been published. Civil society and zero waste organisations are currently demanding key zero waste elements be included in the national law. These demands include implementing prevention and reuse policies, such as deposit return schemes, enforcing proper recycling of organic matter, as well as the implementation and introduction of new waste taxes which favour Pay as You Throw models.

With almost a hundred of zero waste municipalities in Spain, we are convinced that in the following years more and more cities will follow a zero waste path. It is inevitable, because it is the only sustainable model for environment, economy, society and health. **The future will be zero waste and municipalities know it well.** The COVID-19 pandemic crisis will push municipalities to implement urgent solutions for economic recovery like zero waste strategies, with cost savings and

opportunities in job creation on reuse and preparation for reuse. Also, we hope that policies and regulations at the EU level further prioritise and enhance waste prevention and reuse, so that only products that are toxic-free, reusable, durable, repairable, recyclable or compostable enter the market.

National context

In 2018, Eurostat estimated that Spain generated 475kg per capita of municipal waste, a decrease of 175kg since 2000 but an increase since 2012, which could be attributed to broader economic factors. Furthermore, Spain's recycling rate of municipal waste is estimated to be at 38% nationally, just under 10% below the EU average. National statistics for 2017 state that 18.3% of municipal waste was recycled and 17.8% composted. However, there are questions raised over the accuracy of these figures. According to the same national statistics, only 16% of waste is separately collected, which means that figures for recycling are being calculated to also include the output from waste that is sent to MBT (Material Biological Treatment) which most often ends up as backfilling for landfills. For the remaining municipal waste, just over half (51.2%) was sent for landfilling and 12.7 incinerated.



Croatia

Our member, [Zelena akcija](#) (Friends of the Earth Croatia), have been supporting Croatian municipalities to help reduce their waste since 2015 via the Zero Waste Croatia network that consists of different national NGOs. Officially, 12 Croatian municipalities have adopted their own zero waste commitment, however the true number of those remaining to actively work on their zero waste plans is slightly lower today.

Whilst successful results and good practices have occurred in the municipalities of Krk, Čakovec, Križevci, Koprivnica, Ludbreg and Osijek, Zelena Akcija have focused the majority of their efforts, and seen subsequent impact, with the first 7 and now 12 municipalities that are managed by the waste management company PRE-KOM. These originally included 7 municipalities, the city of Prelog, and the districts of Goričan, Donji Kraljevec, Sveta Marija, Donji Vidovec, Donja Dubrava and Kotoriba, with altogether more than 25 000 inhabitants. The municipalities served by PRE-KOM made their zero waste commitment in late 2015 and by 2019, a total of 12 municipalities had committed to become zero waste reaching over 40,000 residents.

Across these 12 municipalities, 57% of waste was separately collected in 2019, marking a significant increase since the adoption of a zero waste strategy five years before, when the rate was just 22%. The City of Prelog in particular has achieved the best results, collecting over 66% of waste for recovery.

Impressive results however can be seen also in waste prevention, not just in collection and recycling. Across PRE-KOM's 12 districts, **an average of just 70kg per capita of mixed municipal waste was generated in 2019.** Furthermore, total municipal waste generated in 2019 was 227kg per capita, in comparison with the national average in Croatia of total municipal waste of 444kg per capita.

The City of Prelog and its neighboring municipalities, together with the waste management company PRE-KOM, are not fully satisfied with their results and intend to continually improve the system in the coming years. They have set a target of 70% separate collection in the coming years, whilst nationally that is the target that has been set for 2030, showcasing how advanced these municipalities are within the Croatian context. A number of prevention measures have been established in the region, including reuse centres for different material streams, and the plan is to continue to grow these centres together with continued dialogue with the local communities.

"When we prepared the original recommendations in 2015, we believed that municipalities served by PRE-KOM, following the Zero Waste principles, could very quickly prove that great results can be done in Croatia. Their success was bad news for many interest groups that have been blocking the waste management system improvements due to interests in the waste business. It took courage to step in the direction opposite to the one taken by most municipalities and the Croatian Government.

PRE-KOM have shown that in a relatively short period of time, it is possible to create a good quality waste management system and become a good example for others. If this system is copied in the rest of Croatia, we would jump quickly from towards the bottom of European statistics in recycling and quality of life to the most successful countries in Europe. PRE-KOM developed a model that is slowly being copied by the growing number of municipalities in Croatia and we invite them to join the network of the most successful municipalities in Europe.

I am proud that Zelena akcija contributed to this success with its analysis. This shows that NGOs have relevant knowledge and that when the authorities are ready to listen to well-argued recommendations, significant results can be achieved."

Marko Košak, Zero Waste Croatia Coordinator

National Context

In 2019, according to national statistics, 444 kg per capita of municipal waste was generated in Croatia, which is an increase of 2% compared to the total amount from 2018. Separate collection rates were estimated to be 37%, an increase of 6% compared to 2018., whilst the recovery rate was 30%, an increase of 5% compared to the previous year. Together this resulted in a decrease of 7% of the total municipal waste being disposed of, compared to 2018.

With a recovery rate of 30% for 2019, Croatia has drastically improved its performance since when it first became an EU Member State, when recovery rates were just 3% in 2007. However, as discussed above, the EU requires Member States to be recycling 50% of municipal solid waste by 2020, so nationwide the country has a lot of room for improvements within its waste and recycling system. Particularly looking specifically at the efficiency of bio-waste collection and recycling, so often the single policy which can have the biggest impact in terms of reducing waste and improving recycling rates. For example, Croatia recycled just 12kg per capita of bio-waste in 2018, compared with the EU average of 83kg per capita.



See factsheets for each country and learn more about the state of biowaste collection in the EU, as well as the potential for vast improvements, in our groundbreaking report on the topic.



Learn more about how the City of Prelog and its neighbouring municipalities became a zero waste best practice in Croatia and beyond.



Germany

Written by Marc and Marie Delaperrière, founders of [Zero Waste Kiel e.V.](#)



Motivated by the initiative of the Zero Waste Kiel e.V. Association and legitimized by the decision of Kiel's city parliament, the municipality of Kiel initially committed itself to become the first German Zero Waste City in September 2018. Two years later, in September 2020, the municipality of Kiel released and published its "[Zero Waste City Concept](#)", which includes ambitious goals for 2035 to reduce total waste generated per inhabitant / per year by 15% compared to 2017, as well as a reduction of residual waste to 85 kg per inhab / per year.

Kiel is a city in northern Germany on the Baltic sea, capital of Schleswig Holstein and partner city with San Francisco. Kiel already has a strong commitment within its climate plan "100% Klimaschutz 2050" and, as a Baltic seashore city, has inhabitants that are sensitised to and aware of the increasing problems caused by marine plastic pollution. In 2018 our non-profit association "Zero waste Kiel " e.V. suggested the municipality to start a zero waste journey as a logical continuation of the city's sustainable efforts.

The zero waste project was coordinated by the environmental protection department of Kiel and was written with an expert team from the [Wuppertal Institute](#). Zero waste Kiel e.V, as

the zero waste project partner with the City of Kiel, has and continues to enthusiastically advise the process started by the environmental protection department. We have established a formal link to the Zero Waste Europe network and regularly provide the municipality with concrete advice and support using the zero waste cities methodology already practiced and implemented by hundreds of other European cities.

The 107 measures proposed in the zero waste concept, to reach the two main goals outlined above, are mainly the result of broad citizen participation. This has been coordinated through 5 in-person workshops held in the second half of 2019 and at the beginning of 2020.

Key data and goals from Kiel

Kiel's total municipal waste generation per capita: **498kg (2017)**

German average total municipal waste generation per capita: **615kg (2017)**

Kiel's future target for total municipal waste generation per capita: **424kg by 2035**

Kiel's residual waste generation per capita: **170kg (2017)**

Kiel's future target residual waste generation per capita: **85kg by 2035 (50kg in the long term)**

Kiel's separate collection per capita: **190kg / 38% (2017)**

German average separate collection / Recycling rates: **66% (2016)**

Selection of other key objectives and measures to be introduced by the City of Kiel

- Halve the amount of waste in municipal buildings by 2035.
- Reduce contamination rates for biowaste, paper, cardboard, and light packaging to below 10% by 2050 at the latest.
- 10 zero waste schools in Kiel by 2035.
- By 2025 only reusable tableware is permitted at events organized by the municipality of Kiel and by 2030, only reusable tableware is permitted at all events that take place in municipal areas.
- Until 2025 no disposable packaging on local markets in Kiel.
- Creation of a zero waste guide for public procurement.

Next steps

Kiel will also be a pilot city to test the new "Zero Waste Cities Certification" scheme currently being designed and soon to be launched by Zero Waste Europe. At the same time we have an exciting challenge for our own zero waste association. Several German municipalities or other zero waste associations following with interest the project of Kiel have contacted us to learn from our experiences and help spread the zero waste cities approach in Germany. As part of this, we will be partnering with other Zero Waste Europe members on an exciting new project with the aim of learning from and replicating the Kiel experience elsewhere. We are going to consolidate a network of zero waste associations under an umbrella 'Zero Waste Germany' organisation, collecting and adapting several key resources on the zero waste cities approach to be made publicly available on the Zero Waste Germany website.

Last year, the title of the zero waste conference organised in Kiel by Zero Waste Europe and ZW Kiel e.V. was "Kiel, a milestone for zero waste cities in Germany". Today, we can say: yes, indeed this was a kind of milestone, a trigger for change and a source of inspiration for the next years. The city's commitments and the formal adoption of the measures outlined in the Zero Waste Concept will be submitted to the vote of the city council in November 2020, shortly before the European Week of Waste Reduction. We are excited by the vote result and to have this commitment formally adopted!"

Statement from the municipal zero waste team of Kiel, Germany

After the decision of the Kiel Council to become a Zero Waste City in September 2018, followed by an intensive concept development during the last twelve months especially, the zero waste strategy for the municipality of Kiel has now been completed. The strategy was developed with the support of the renowned Wuppertal Institute and in close collaboration with the citizens of Kiel and the Zero Waste Kiel e.V. association, which is also a zero waste cooperation partner of the city administration. In total, around 450 citizens from Kiel have participated in five workshops and one kick-off event and gathered more than 650 ideas, which have been structured and incorporated into the final catalogue of measures.

With its zero waste strategy, Kiel has added another substantial contribution to its sustainable urban strategy. The zero waste strategy fits perfectly with the city's climate protection activities and its commitment towards the UN's Agenda 2030 and its 17 Sustainable Development Goals (SDGs).

"In the state capital Kiel, we are aware of the global challenge posed by the increasing consumption of resources and the increasing volume of waste. Too many resources are wasted instead of being returned into the material cycle or avoided right from the beginning. Therefore, I am proud that the municipality of Kiel has decided to join the international Zero Waste movement and continuously work on reducing the amounts of waste in Kiel. Thereby we want to face the global challenge of increasing resource depletion on the local scale and as the first aspiring Zero Waste City of Germany, we hope to become a role model for other cities, too."

Mrs Doris Grondke, Head of the Department for Urban Development, Building and Environment

The Zero Waste strategy was officially approved at the Council level in November 2020, meaning the zero waste measures will now begin to be implemented, with the aim of drastically reducing the amounts of waste in Kiel in the next years and decades.

National Context

Eurostat estimates that in 2018, Germany recycled 67% of municipal waste, the highest in the EU currently, although with the new methodology adopted by the EU in 2019 this figure is likely to go under 60%. Germany has a long tradition of being a champion of recycling and door to door collection, however, the country also has a reputation as one of the highest volumes of waste generation per person. Provisional estimates for 2018 suggest Germans produced 455kgs of waste each, with 187kgs per capita of residual waste. The total waste generation is 7kgs less than in 2018, but the statistics in the mid-term all point towards a continued increase of waste that is generated.



The EU is increasingly taking steps to formally recognise 'Waste-to-Energy' as a practice that is unsustainable and incompatible with our circular economy and carbon-neutral targets. Read our latest briefing here that commends the exclusion of Waste-To-Energy incineration from the EU Taxonomy Regulation.



Bulgaria

Written by Evgenia Tasheva,
[Za Zemiata](#)

Svilengrad is Bulgaria's one and only zero waste city so far. The municipality embarked on the road to zero waste back in 2018, when a local Zero Waste Advisory Council was established, including Za Zemiata team members, whose role is to support the local authorities in implementing a zero waste action plan. In 2019 Svilengrad officially submitted the data and signed their commitment to become part of the Zero Waste Cities programme.

Some of the latest major improvements to the local waste management system in Svilengrad as part of this commitment include organised door-to-door collection of sorted recyclables from shops and restaurants, building on the existing household collection system. The municipality also increased its management infrastructure, including acquiring a baling machine to optimise storage and transportation of discarded paper and cardboard. In September 2020, Svilengrad launched its new composting installation with a capacity of 3000 tonnes per year. The composting facility comes together with the appropriate equipment for transporting and treating discarded organic materials and bins for separate collection: brown for food waste and green for garden waste. A worrying trend is that many municipalities are already seeking ways to extract more Refuse Derived Fuel (RDF) from the mixed waste stream before landfilling, as the cost of treating RDF in cement kilns or coal-fired thermal power plants is soon expected to be equal to, or lower than that of landfilling."

"The results of our efforts are clearly visible: containers full of organic waste are arriving at the composting site. The participation of our fellow citizens who keep diligently separating their waste is key to our municipality's continued progress towards sustainable waste management."

Svilengrad's Deputy Mayor, Maria Kostadinova:

Data on Svilengrad's Municipal Solid Waste (MSW) 2016-2020

In the yellow column within the table below, the impact of Svilengrad's zero waste strategy is clear to see. From 2019 onwards, the volume of materials sent for recycling has seen a huge increase, with separate collection doubling in just one year.

Amount of waste by type of waste treatment and waste stream	2016	2017	2018	2019	Jan – July 2020
Residual / Mixed waste transported to the sorting centre before the landfill (in kgs / per capita)					
Pre-treated	277.4 kg	258.4 kg	272 kg	266 kg	142 kg
Disposed / landfilled	264.4 kg	248.1 kg	238 kg	188.4 kg	79.8 kg
Sorted for recycling or RDF out of mixed waste	10kg	10.3 kg	34.2 kg	77.8 kg	62.6 kg
Separate collection system:					
1. Bring system for packaging waste (public containers)					
2. Yellow wheelie bins (door-to-door collection)					
3. Shops and other commercial enterprises					
1. Packaging – Bring system (measurements in tonnes)					
Green container (glass)	5,1	21,1	14,7	83,6	41,8
Yellow container (plastics, metal)	14,8	15,0	3,8	17,0	8,5
Blue container (paper)	22,8	17,8	14,2	32,0	16,0
2. Packaging – Door-to-door yellow bins					
	6,8	35,2	69,7	73,3	40,7
3. Shops and other commercial enterprises					
Waste electric and electronic equipment	0,0	35,4	47,7	125,2	46,2
Total separate collection (tonnes)	49,6	131,6	150,3	331,1	153,3[1]
Estimate total waste generated[2]	6218,3	5877,4	6203,9	6251,1	3311,9
% separation	0,80%	2,24%	2,42%	5,30%	4,63%
% landfill	95,61%	93,87%	85,29%	67,02%	53,33%
% RDF + recyclables + other recovery	3,59%	3,89%	12,29%	27,68%	42,04%

[1]Based on the performance of first 7 months, forecast amount for 2020 is 262,84 tonnes.

[2]As no exact measurement system is in place, an estimate is made by summing residual and separately collected waste.

National Context

Bulgaria is traditionally among the laggards within the EU in terms of separate collection and recycling performance. Several game-changing factors come into play after 2020 that will push local authorities to seek to optimise their waste management costs and performances:

1. New methods of charging for waste management services, according to the amount of waste generated;

2. Significantly higher landfill fees introduced nationwide;
3. New post-2020 recycling targets set by the European Union;
4. Quickly shrinking landfill space available within the country, together with a lack of available European cohesion funds to extend this capacity or build new disposal facilities.

As mentioned before in this report, 2020 saw the Zero Waste Cities programme expand into two new countries, Ukraine and the United Kingdom.

United Kingdom



On the 11th July 2019, the Environment and Regeneration Committee of Derry City and Strabane District Council, in Northern Ireland, endorsed the Council's bid for membership of the Zero Waste Cities programme. In September 2020, the Council formally submitted their application to the Zero Waste Cities programme, becoming the first Zero Waste City in the UK and on the island of Ireland.

The commitment to become a zero waste city is a crucial element of the Council's broader [Circular Economy / Zero Waste Strategy](#), developed in December 2017. The strategy, developed by [Eunomia Research & Consulting](#), aims both to move the management of waste up the hierarchy towards prevention and looks to foster the development of the regional economy through keeping resources and products in use for as long as possible, extracting maximum value before recovering and regenerating them at the end of their life cycle. The strategy contains 37 different policies which the Council has committed to take forward.

As part of their zero waste commitment, Derry City and Strabane District Council will put in place the measures that will enable it to achieve the following proposed Northern Ireland targets:

- 65% recycling of municipally collected waste by the year 2035.
- 75% recycling of packaging waste by 2030.
- Reducing landfill to a maximum of 10% of municipal waste by 2030.
- A ban on the landfilling of separately collected waste.

The council has also set itself a target of reducing residual waste to less than 150 kg/inhabitant/year by 2030, from the present volume of approximately 300 kg/inhabitant/year.

Furthermore, the Council will prioritise high quality dry recyclate suitable for local reprocessors. A target of keeping at least 70% of material for reprocessing locally has been set, whilst the Council has committed not to enter into any residual waste contract which compromises the ability to achieve its Zero Waste goals.

"Zero Waste North West is truly proud of our city-region, our political representatives, our council officers and all our zero waste stakeholders and citizens. This commitment represents the first step in authentically addressing and arresting the waste generation crisis that is polluting our air, land and waters, not just locally but globally. We can't recycle our way out of the crisis. Here and across the globe we need to transition from our linear economy to a circular one. Then we expose what waste truly is, leakage from the circle. Year on year we must steadily reduce our generation of waste to zero. This is a jobs-rich innovation and direction, part of a new vision for a green recovery in our city region that prioritises the health and wellbeing of ourselves and the finite planet in which we live. It's a journey all of us have a part to play in. Thank you to all who played a part in bringing us to this first step towards innovation and regenerating our city-region economy. Let the journey begin."

Maeve O'Neill, Chairperson, Zero Waste North West.



Read more about the success of Derry City and Strabane in our blog.

National Context

In 2018, the 4 countries within the UK (England, Wales, Scotland and Northern Ireland) [had a combined recycling rate of 45% for municipal waste](#), a decrease from 45.5% in 2018 and below the EU average of 47%. Individually, England recycled 44.1%, whilst in Scotland and Northern Ireland the rates were 42.8% and 47.7% respectively. The best performing UK nation in terms of recycling is Wales, [with 54.1% of municipal waste being recycled](#). According to [Eurostat](#), municipal waste generated in the UK was 463kg per capita, slightly below the EU average of 492kg, with approximately 250kg per capita each year of residual waste.



Ukraine

On 17th September 2020, the Lviv City Council passed a motion confirming its commitment to become the first Ukrainian and first non-European Union Zero Waste City.

The City of Lviv has an approximate population of 755,000, making it the largest in the western side of the country and seventh biggest city in the whole country. During the past year, Lviv residents generated 356kg per capita. Separate collection of waste is available either via door-to-door or street containers, although the materials collected differ depending on which of Lviv's 6 waste management companies a household or business falls under. Organics waste collection is increasingly being mandated and a Pay-As-You-Throw system is implemented partially within the city.

Zero Waste Lviv and the Zero Waste Alliance Ukraine are participating in a new project aimed at accelerating progress towards zero waste at the local level in Ukraine and in 10 other countries. The team in Lviv recognise that this commitment is just the first step and a lot more work is needed to build an effective local zero waste strategy, including the collection of better quality data to help set definitive waste reduction targets, building on the 30% waste reduction target it set itself back in 2017.

"We've come a long way since 2017, when the idea of adopting zero waste strategy for the city was presented. In close cooperation with the city council, local businesses, NGOs, and growing number of citizens, we have set the trend for waste prevention as the number one priority in waste management and inspired the movement all over Ukraine."

Iryna Myronova, Head of Zero Waste Lviv

 Read more on Lviv's commitment to become a zero waste city.



Hungary

Throughout the middle of the last decade, 2010-2020, a number of Hungarian municipalities also joined the Zero Waste Cities programme. Led by the great work of our local member Humusz, Hungarian municipalities from across the country had signed up to a national zero waste charter.

However, over the past couple of years and since the implementation of the Hungarian Waste Management Plan 2014-2020, competency for waste management within the country has been centralised, shifting responsibility from the local to the national level. Coupled with an ever-changing national landscape, this has subsequently meant that municipalities can no longer make the necessary commitments needed to be defined as a zero waste city. Therefore, whilst the Hungarian municipalities who made previous zero waste commitments can still be accessed via our online map as a reference point, we no longer include them within our discussions and planning for the programme as a whole.

According to Eurostat, Hungary produced 381kgs of municipal waste per capita in 2018 with a recycling rate of 38%. With the data sometimes unclear, we will continue to work together with our local member, Humusz, to support any local authority who wishes to use the competencies they have available to them to design and implement waste reduction policies.

Of course, whether a country's waste management system is managed at the national, regional or local level is not a prerequisite or determining factor for zero waste to ultimately succeed at the local level. One of the benefits of our zero waste cities approach is that it helps to decentralise waste management to the local level. However, if circumstances where waste management competencies sit at the regional or national level, there are still several actions a municipality can implement within an effective local zero waste strategy. These include developing local level regulations for waste prevention, challenges that incentivise waste reduction, or develop best practices on specific aspects within a zero waste programme, such as decentralised organics management initiatives like community composting.



Read our case study on the town of Roubaix, France, which implemented a highly impactful zero waste community engagement strategy to reduce its waste, despite lacking the formal ability to change waste collection and treatment practices.

Zero Waste Best-Practices



There are various different components and policies that come together to create a holistic, community-centred zero waste strategy. From effective door-to-door collection of waste to tailored communications to the local community, there are numerous different aspects of a zero waste strategy that a municipality must contemplate when designing a strategy from scratch or looking to optimise existing ones.

This section highlights just a few of Europe's best zero waste practices implemented by local and regional authorities. Some are within our Zero Waste Cities programme and some are not. All of these initiatives have been implemented or facilitated by local municipalities that recognise recycling alone is not enough to solve the waste crisis, re-focusing instead on preventing waste from being generated in the first place.



REPAIRED
ITEMS

Self-service refill machines, Slovenia

Written by Jaka Kranjc, Secretary-General, Ekologi brez meja

The first automated liquid-refill station for dispensing ecological cleaning products in Slovenia was set up in a Depo store within the municipality of Vrhnika in 2017. The public utility company, KP Vrhnika, provided the space, and NMC, an automation company (dairy and wine dispensers), provided the innovative technological solution for refilling.

By offering plastic and packaging-free refills for cleaning products at the Depo store, the municipality wanted to bring Vrhnika's zero waste strategy closer to their customers and make zero-waste living more feasible for residents. The business model is based upon customers being able to refill reusable packaging with arbitrary amounts of cleaning products and other liquid supplies, with each customer bringing reusable packaging items and reusing them each time. The weight of the packaging and the volume of liquid dispensed are calculated together to decide the fee each customer pays. After the transaction, a sticker is produced and acts both as an invoice and as a product declaration. The machines themselves are also an example of reuse and recycling practices, as their frames are typically made of secondary materials.



Picture 1: Depo Vrhnika Facebook

The use of these machines has since spread to the capital of Slovenia, Ljubljana, which is also following its own zero waste commitments. The machine can be found in several locations around the city, and the one operated by the waste management company, Snaga, is called Bert. Euromonitor International selected the Bert vending machine as the most innovative retail concept of 2019 as part of its annual global retail market research. Moreover, the machine also reached Croatia and is now present in Rijeka, as well as continuing to be implemented across other slovenian cities.

"We are happy that citizens are returning for refilling with packaging that they bring from home, thus not creating any new packaging waste."

NMC's Maja Nagode proudly said to Zelena Slovenija



Picture 2: JP VOKASNAGA, Bert - Ljubljana CPU

In the spirit of zero waste, and as part of that the adoption of sustainable living principles coupled with the provision of services to act out these principles, the message of the Bert machine and the system in Vrhnika is that, through thoughtful shopping, it is possible for customers to significantly prevent the generation of new waste. It is part of a much wider process happening across Slovenia, whereby individuals are increasingly recognising the importance of packaging-free shopping and more businesses are adapting their business models to offer reusable and refillable options.

All locations and shops with a "bring your own packaging" option, as well as more information and education on the topic, can be found at manjjevec.si

Zero Waste Family Challenge, Capannori

Written by Rossano Ercolini and Laura Lo Presti, Zero Waste Italy

Do you think that it is impossible to have all of your rubbish for the year in just one bag? Think again. The Zero Waste Families Challenge in Capannori resulted in each participating person generating, on average, just 3.8kgs of residual waste in one year.

In the Italian Municipality of Capannori, the Zero Waste Research Center helped pilot the first local Zero Waste Families Challenge. The project involves 85 families comprising 240 citizens altogether – including the family of the Mayor and the Vice-Mayor – who are supported to further reduce their waste and, as part of the process, make themselves available to have their residual waste weighed each week. The project was inspired by the experience of families within the French municipality of Roubaix, who [initiated their own zero waste household challenge](#), following a learning-exchange visit from the deputy-Mayor of Roubaix in 2013.

In Capannori, the families who join the challenge save money within the variable portion of the TARI, the local tax for waste management. A 30% reduction is given to families composting their food and garden waste at home, whilst a further reduction is given to the participating families, resulting in savings of approximately 80-90€ /year per family - a large amount given the already very low rate of TARI within Capannori thanks to its effective zero waste strategy. [From an investigation carried out by an independent newspaper \(Il Tirreno\)](#) three years ago, we know that Capannori, among the Tuscan municipalities that exceed 25,000 inhabitants, is the municipality where family users pay the least. A family of 3 in Capannori pays approximately 250€/year.

Each zero waste family signs up for the challenge at the Research Center. They receive a notebook that is divided into different colours, which correspond to the colours of separate collection bags. In this notebook, families are requested to record the weight of the residual waste fraction before they leave it outside for collection. Participating families are provided with constant support and guidance throughout the year on how to further reduce their waste. The Zero Waste Research Centre runs training sessions on different topics, such as composting and the creation of small urban farms at home. In 2019, small training sessions on the production of soap and on the repair of some household furniture items were also organised.

Furthermore, each week a volunteer from the Research Centre helps households weigh their rubbish and note it down properly in their book. Since the families included in

this project only receive a discount on the bill for residual waste, the other recyclable fractions are not weighed (just described) before being sent for recycling. However, families are encouraged to weigh the “multi-material” recycling bag, so that the Centre can further understand how much plastic these zero waste families use each week.

The average volume of residual waste from participating families per capita is 3.8kgs compared to the average in Capannori of 87-88 kg per capita.

Within the zero waste system in Capannori there are also 5 Repair & reuse centers that restore and sell second-hand products that would otherwise have been sent for disposal. These centres are open to all residents to use (rather than just to the families involved in the programme), but they are an important part of the local system to encourage and embed circular thinking, helping to extend the lifespan of several products through their repair and reuse. The list of items repaired by the centres includes, among others, furniture, used clothes and other household appliances. This reuse and repair system currently employs 12 people, who are specifically involved in carpentry workshops, the repair of furniture and bicycles, the re-tailoring of textile items, and more. The municipality of Capannori will also soon open a further center to repair Waste of Electrical & Electronic Equipment (WEEE).

The example of Capannori's Zero Waste Family Challenge is a perfect embodiment of one of the most crucial principles within the zero waste cities approach - the continuous seeking of improvement and optimisation. Capannori is already one of Europe's best performing zero waste cities, with a separate collection rate of 82% and an average residual waste generation of 87-88 kgs per capita. It's Pay-As-You-Throw system uses Radio-Frequency Identification (RFID) to read and quantify the residual waste of every household, resulting in one of the region's lowest waste tax pricing as mentioned above. And yet, the municipality recognised that more could be done to further reduce waste by providing local families with direct support and incentivisation to minimise their waste.

Reusable nappies, The Lavanda project

For many zero waste municipalities, disposable nappies are one of the most common and problematic items, heavily contributing to the volume of residual waste. An essential part of any society, throwaway diapers often result in a large volume of the waste that cannot be recycled.

Statistics show that, in 2017, around **33 billion single-use baby nappies were consumed across the EU, resulting in 6,731,000 tonnes of waste generated per year.**

Single-use menstrual products, baby nappies, and wet wipes account for approximately 7,832,000 tonnes of waste within the EU-28 (equivalent to 15.3kg per inhabitant per year). **This accounts for 3% of total municipal solid waste and 4% of the total residual municipal waste stream.**

Single-use nappies and menstrual products also contribute significantly to global warming. Throughout their lifecycle, these items emit an estimated 3,300,000 tonnes and 245,000 tonnes of CO₂ equivalents per year, respectively.

Recognising the need to tackle the issue of disposable nappies, the Bologna-based social cooperative Eta Beta created the Lavanda project. Lavanda seeks to promote the use of washable nappies and bring parents closer to this ecological, economical, and healthy choice. The project provides a collection and washing service of used cloth nappies to the local community, as well as delivering clean ones in return. This project originally began in 2009 through a collaboration with the University of Bologna, and has been formally operating within the city since 2013, with initial financing provided by the Emilia Romagna Region.

Currently, the project only works with public administrations, organisations and cooperatives that manage nurseries. In the future, Lavanda wants to gradually open their services to families.

Collection

The collection and delivery service is carried out twice a week, with a collection point for dirty nappies set up outside the buildings of participating entities. The service also supplies containers and bags to collect dirty nappies during the changeover. Bags with dirty nappies must be picked up and taken to the external container, which is equipped with a double opening. The outer lid of the container is opened and the dirty nappies are inserted, with the lid closing automatically. A lever is then pulled, opening the

second (inner) lid and users then place the nappies inside the collection bag. This system stops - or at least greatly limits - the release of bad smells. The collection bags are made of compostable material (maize waste) and can be treated as organic waste after their use.

Washing

The nappies are washed in a laundry dedicated exclusively to this service, and which follows hospital-standard hygiene rules. The washing and packaging process is carried out by disadvantaged workers, who are recruited through a job exchange process by the Eta Beta Cooperative. A tutor follows the production process and supervises the social reintegration process of the workers involved. On a daily basis, the service requires 3 workers: 2 laundry staff and 1 driver for collection and deliveries. The diapers are washed with low environmental impact, chlorine-free detergents and at temperatures that do not exceed 62°C. The garments are also dried using a process that guarantees perfect sanitisation and then packed in special packages for subsequent delivery to the participating institutions.

Control and quality

The project envisages the introduction of a nappy recognition system, which would allow families to control the entire rental process both at school and at home. Lavanda is testing various options to distinguish diapers according to the nursery, the room/section, and the individual child: colours, alphanumeric codes or symbols, and barcodes. The final choice of identification method will be made on the basis of a careful cost/benefit assessment. The introduction of the nappy recognition system will also enable the monitoring of the number of incoming and outgoing nappies, which will allow a prompt intervention in case of any problems with the individual child or nursery (such as allergies or reports with respect to the Lavanda service).

Service implementation & development

Between 2009 and 2011, the project underwent its experimentation phase, which comprised 8 participating institutions and an approximate volume of 8000 nappies per year. From 2012 to 2014, the service was increased to include 18 institutions, before growing again between 2015 and 2019 to 20-22 participating institutions.

In 2020, many of the participating institutions (nurseries, schools) were closed due to COVID-19 pandemic, and did not rejoin the service when the service partly reopened. All participating institutions have been based in the Province of Bologna, within a range of about 30 km from Eta Beta's headquarters.

In 2015, the number of nappies that were washed and subsequently prevented from becoming waste reached 44,030. In each of the following years up until 2020, the number of nappies washed surpassed 21,700 units, reaching 35,792 items in 2017 at its peak. Due to the COVID-19 pandemic, only 11,745 nappies have been washed in 2020.

A 2008 lifecycle assessment by the UK Environment Agency concluded that the unit weight of a nappy before use was 38.6 g, whilst the unit weight of a used nappy can be calculated as 191 g. Using these weights, we can reasonably calculate the volume of waste prevented by the Lavanda project each year. For example, in 2015 the project prevented 8409.73 kgs of nappies from being included in the residual waste. Therefore, if reusable nappy projects like Lavanda were scaled up to include more kindergartens and rolled out across more European municipalities, the potential impact for reducing the waste volume of one of the most problematic streams is huge.

Training & evaluation

Before the beginning of the school year, the service is presented to local schools and other collaborators to carry out the necessary training on the appropriate use of washable nappies, with particular attention given to hygiene rules. It is also considered necessary to monitor the performance of the service during the year, collecting observations and suggestions from the operators through specific evaluation forms to improve and adjust the service.

The Lavanda service is also presented to local parents, to inform them about the advantages of using washable nappies compared to disposable ones (health, environment, educational reasons) and about the health and hygiene guarantees. Further meetings with families are organised during the year to evaluate the satisfaction of the service and to propose the introduction of washable nappies at home.

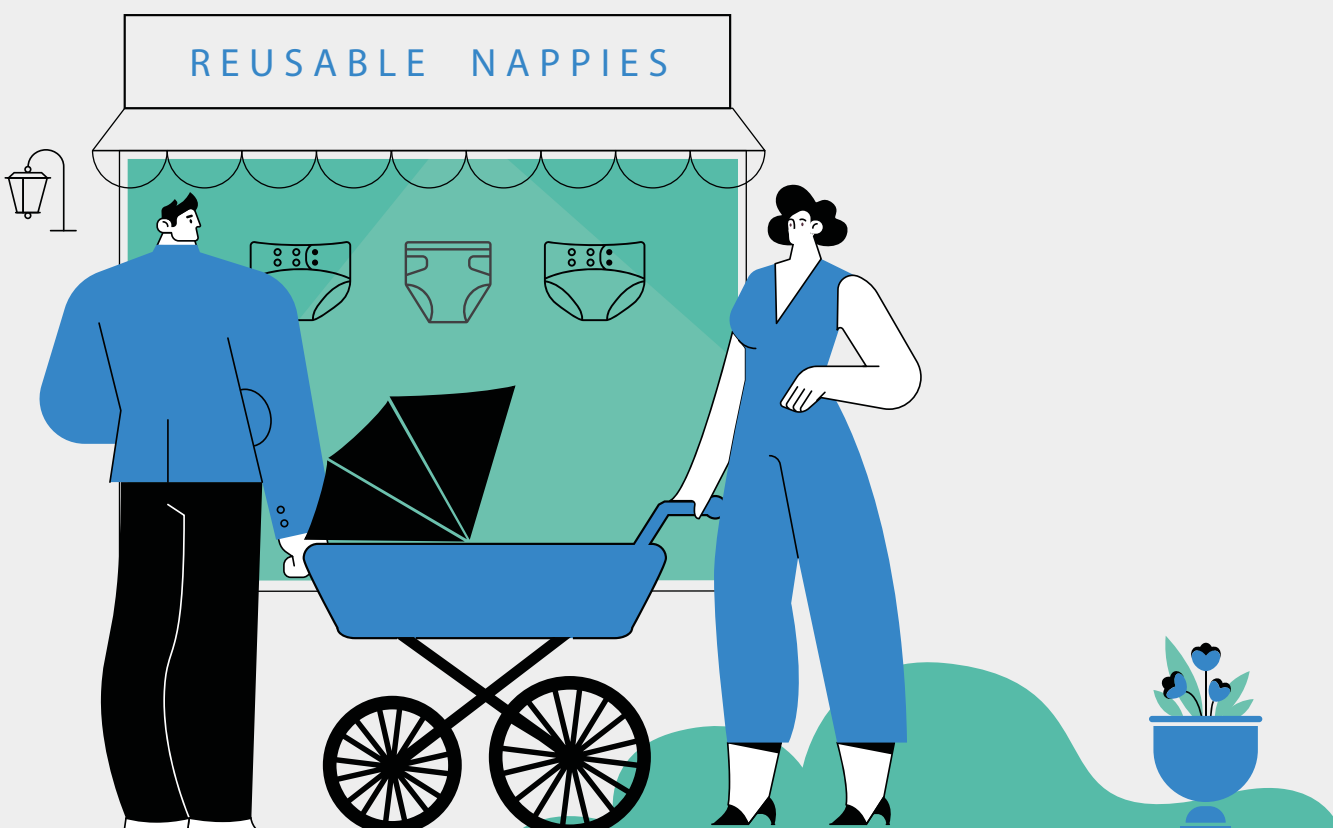
Combining sustainability with social welfare

The Lavanda project not only directly helps to reduce the volume of residual waste within the Bologna Province, but it also helps create new opportunities of employment for disadvantaged people or people who face social difficulties. Lavanda aims to increase social welfare whilst also sustaining a healthy environment. It achieves these objectives by increasing the responsible behavior of local consumers and creating a system of waste reduction. Furthermore, Eta Beta has set up a 'nappy library' at its headquarters, with the aim of providing support to local residents in choosing the reusable nappy model that best suits each family's needs.



Read Zero Waste Europe and Rezero's study on the serious environmental, economic, and social impacts of the production, consumption, and disposal of single-use menstrual products, nappies, and wet wipes.

REUSABLE NAPPIES



Community composting in Pontevedra, Spain

The Spanish province of Pontevedra, which includes 61 municipalities, had extremely low waste management results for a long time, with only 9% of its waste being separately collected - leaving the remaining 91% to be transported more than 100 kilometres away, where it was either burned or landfilled.

To shift from this unsustainable, centralised, and expensive waste management system, and to comply with EU recycling obligations, the province launched a project named "REVITALIZA" in 2016, which built a decentralised, community-led composting system for biowaste. In 2019, after only 3 years, the Province achieved ambitious results: more than 2,000 tonnes of biowaste were locally composted, whilst the project was successfully rolled out in more than two-thirds of the province's municipalities.

Since we wrote the initial case study, the REVITALIZA project has continued to grow and it is now starting a third phase, "Liña III." Councils in phase 3 are being encouraged to change their waste regulation following suggestions and proposals from REVITALIZA officials. These include changing the standard rate from an actual "fixed rate" to a "variable rate" instead, following a new "pay as you throw" system that incentivises further composting and subsequent waste reduction.

Carlos Pérez Losada, Head Advisor of the Revitaliza project, Pontevedra, said:

*"REVITALIZA's main strategic focus is not (only) to properly treat the highest possible volume of organic matter produced by local residents as businesses through local composting. In fact, our main strategic priority is to "kidnap" (through local/proximity composting) as much organic matter as we can away from the conventional circuits of waste management that exist within Pontevedra. Simply put, if we achieve our aim of "kidnapping" more than 70% of organic waste, we can subsequently reduce the frequency of collection rounds for residual "all in one" waste. **We would be able to cut collection rounds from 5-6 days/week in urban areas, or 2-3 days/week in rural areas, to only one collection round every 2 or 3 weeks, sometimes even more.***

It is widely known that organic waste contaminates other materials; produces bad smells and lixiviates; attracts insects, birds and rats, etc.,. Therefore, too often, municipalities fall into a system where they are obliged to frequently collect the organic waste from households, especially during hot periods of the year. However, if treated properly, and instead of being collected, all this waste could be composted without problems in small, or very small, composters. Without organic waste, or with much lower levels, many of these problems would disappear. You

could drastically reduce collection frequencies, helping to save a potentially very large amount of costs in the process.

In the province of Pontevedra, waste collection costs account for two thirds - approximately 66% - of the total waste management costs, with the remaining third resulting from treatment.

Through the generalised application of local/proximity composting, as we have done in Pontevedra, municipalities can drastically reduce the costs associated with collection. Furthermore, we now have reliable data on the cost of managing our local composting system: around 90-95€/t for individual/home composting; 105-110€/t for community composting; and 120-140€/t in very small local composting plants.

There is an important economical lesson to highlight which we have learned from the REVITALIZA project: when councils are starting to implement REVITALIZA's new work plan they must preserve their old waste management plan (normally incineration) until the council achieves (at least) a capture rate for organics of 50% and above.

*Our data shows that costs go up at the beginning when implementing this system, due to the fact that whilst a council continues to manage organics using the old system while beginning to roll out a new one, the two costs consequently add up. However, **when organic waste capture rates go above 40%**, the costs associated with the new local composting system start to go down. **Costs go down quite rapidly until capture rates reach 75%**, after which the speed of cost reduction slows."*

Local composting, whilst more expensive initially to get started, costs 2-3 times less than incineration:

- **Incineration costs: 235,5€/t (32.6% of which is associated with treatment, 67.4% with collection)**
- **Individual composting: 95€/t**
- **Community composting: 110€/t**
- **Local composting plant: 140€/t**



Read the full case study on the local composting system of Pontevedra.

Law for Waste and Polluted Land, The Balearic Islands

In February 2019, the Government of the Balearic Islands adopted a pioneering law on waste prevention containing various measures and targets aiming to solve the islands' waste issue. As a result of being an extremely popular tourist destination, the Balearic Islands have the highest waste generation levels in Spain – **763 kg per inhabitant in 2018** compared to the country average of 475 kg. The levels of waste generation greatly vary during the year, with peaks during the highly touristic season from May to October.

The primary objective of this law is to tackle the issue of waste generation in the Islands through a combination of prevention and improved recycling. It aims to boost waste prevention and reuse through specific measures and targets. The law also aims to tackle the most problematic and visible waste streams, such as single-use items, plastic packaging, and food waste. Through the revision of Extended Producers Responsibility schemes, further pressure is put on producers to fully support the transition.

The law offers a comprehensive approach to waste pollution. For example, it sets:

- Binding waste reduction targets: **10% by 2021 and 20% by 2030.**
- A binding food waste reduction target of **50% by 2030.**
- The prohibition of several SUP items (**straws, cutlery, lighters**).
- The implementation of an EPR system to include full cost coverage for packaging, including non-sorted waste and clean-ups.

The law came into force in February 2019, but authorities and companies on the Islands were given 2 years to adapt (until January 2021). However, due to the COVID-19 crisis, the period to adopt the measures has been extended by a further three months. As such, and although some stakeholders – such as hotel and restaurants chains, municipalities, and companies – have already introduced changes to comply with the law (for example, Estrella Damm has replaced the plastic rings of can packaging with cardboard options), this has been done on a voluntary basis, as they are only obliged to introduce these changes by April 2021. As a result, there is no quantitative data on the impact of this law yet in terms of waste prevention, reuse, or separate collection.

Whilst not a municipality or city, the law implemented by the Balearic Islands is a best practice that should be highlighted due to its binding prevention targets, as well as its prohibition of several items that are most commonly found in residual waste bins. The regional government's decision to implement this law showcases that sub-national authorities can take ambitious action to reduce waste whilst continuing to help the local economy prosper.



Read more on the Balearic Islands' pioneering waste prevention law.

City-level bans on single-use plastics

In the past couple of years, a number of European cities and municipalities have taken it upon themselves to implement policies that stem the flow of plastic waste. Bans on single-use plastic items are a tool available to many municipalities, whether enforced only in all publicly run events/spaces, or also through working with local businesses to prohibit such items from being put on the market. A few examples from European cities with successful bans on single-use plastic items can be found below.

In March 2020, [the city of Vilnius](#) implemented a municipal ban on all single-use plastic catering products (such as cups and tableware) for all public municipal festivities. Another Lithuanian city, Joniškis, was actually the first city to take that step in 2019 and to achieve good results, which inspired more cities to take up the challenge - including the historic capital; one of the top national sightseeing locations, as well as Trakai; and the fifth largest city in the country, Panevėžys.

All event organisers and civil society organisations were informed ahead of the decision and were given more than 2 months to prepare alternatives. Companies and start-ups were identified to provide reusable cups, plates, and other reusable items critical to the success of this ban. The municipal decision also required event organisers to provide separate collection containers. This decision was the first important step to help reduce plastic waste produced in the city, while also educating citizens on how to be more mindful about their waste disposal.

In late 2019, the city of Tallinn (Estonia) also implemented a local ban on the use of plastic cutlery and the serving of food and drinks in single-use plastic dishes at public events. All public event organisers in Tallinn must now also ensure

the sorting of mixed, biodegradable, and packaging waste at their events. For now, the use of dishes and cutlery made of compostable biodegradable plastic is still allowed, but the material must meet the EVS-EN 13432 standard or an equivalent option. In the future, Tallinn hopes to transition away from these materials and towards reusable items only.

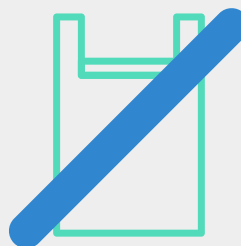
[The city of Paris is set to become single-use plastics free by 2024](#); whilst in Barcelona, all municipal facilities must avoid single-use plastic bottles, plates, cutlery, and cups, and have them replaced with more sustainable alternatives from March 2019.



Check out our guide for inspiration on the actions a local municipality can take to help implement the European Union's Single-Use Plastics Directive.

Want to be further inspired and learn how zero waste strategies are being implemented across Europe today?

[You can find a wide range of case studies, as well as numerous other reports, that present some of Europe's best performing zero waste practices within Zero Waste Europe's library.](#)



What's next

Whilst the progress that has been made over the last decade has been both inspiring and much-needed, there remains an urgent demand for greater action to happen if we are to fully address the environmental crises facing us today.

Recognising that whilst the growth in awareness over the past decade on what zero waste is has resulted in many benefits, we see increasing threats to the true definition of zero waste and the circular economy. The term "zero waste" is being increasingly whitewashed or diluted, sometimes intentionally by organisations, and sometimes due to a lack of knowledge without any common standards to apply.

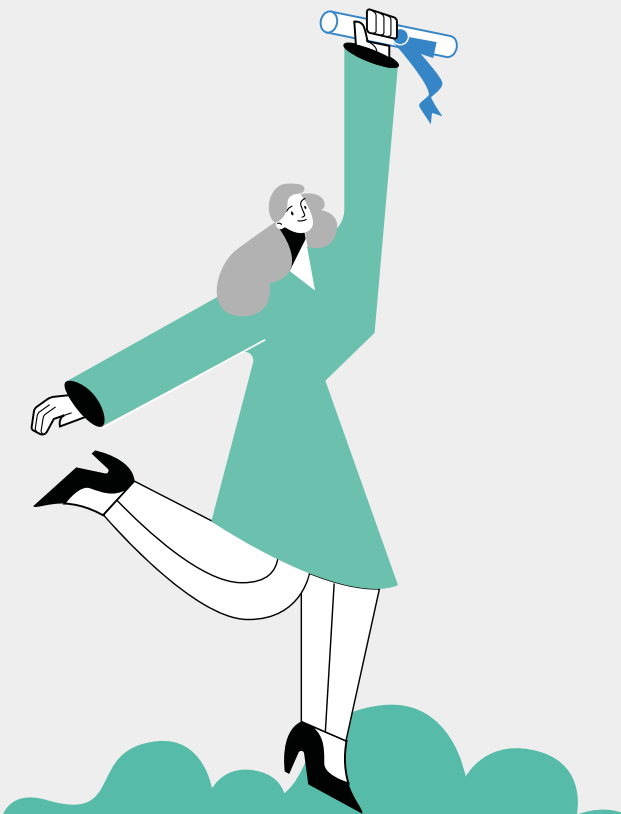
To combat this, and to reassure municipalities that they are truly making a difference, Zero Waste Europe and its member organisations are designing a certification system for Zero Waste Cities.



The Zero Waste Cities Certification

To this date, the Zero Waste Cities programme has been built on a system of recognition and mentoring. Zero Waste Europe and its members recognise the commitment of municipalities to create local zero waste strategies, and mentor officials to ensure the effective implementation of such strategies. Support and guidance are given to help the fulfilment of the commitments made by each municipality.

With the Zero Waste Cities Certification, we are building on over 10 years experience of working with hundreds of European cities, and are now using this expertise to create a more robust, supportive, and ultimately impactful system. It will help enshrine the holistic, community-led philosophy that we see as a crucial component of zero waste, embedding our values with local-led solutions across Europe, and raising the bar higher to push municipalities to commit to more ambitious goals and implement greater policies.



What are the benefits of a municipality becoming certified?

- Certified municipalities will be given greater access to zero waste expertise, in the form of both online resources and local in-person guidance, helping to ensure that zero waste strategies are designed and implemented effectively.
- In many contexts, zero waste strategies can immediately save a municipality money and can continue doing so for many years. This can happen, for example, through lower gate fees for landfill or incineration as less waste is being generated, with greater revenues from selling high-quality recyclable materials and the development of a thriving local economy that is more circular and connected.
- Several positive environmental and health impacts. Zero waste strategies not only help to directly reduce waste, but also help to reduce air, soil, and water pollution, as well as to decrease GhG emissions resulting from the treatment of waste and ultimately further along the supply chain through less extraction and production.
- Receiving the certification is just one part of a longer journey, where municipalities will be continually supported to design, implement, monitor, and optimise their zero waste strategies.
- Access to several opportunities to showcase the success and impact a city has had to European and global audiences, creating a positive image for the community and showcasing good leadership practices.
- Compliance with current EU requirements on its waste, circular economy, and decarbonisation agendas. All current trends point towards the setting of more ambitious goals by Brussels in the future. Therefore, a municipality has an opportunity to get ahead of the curve now and implement a zero waste strategy designed with their local community, rather than being forced or rushed by incoming EU and national legislative deadlines.
- The fee that each municipality will pay to become certified will be reverted to help funding zero waste work across Europe. As such, each certified zero waste city plays a further role in supporting Europe's transition towards a circular future.

The Mission Zero Academy (MiZA)

The certification will not only use a robust set of indicators to formally monitor and recognise the best performing municipalities, but it will also form just one part of a supportive package offered to local authorities wishing to begin their journey to zero waste from any starting point.

This is how the certification becomes so much more than just a certificate.

In close collaboration with the development and roll-out of the Certification, we are also developing the Mission Zero Academy to make resources and expertise accessible for those working in the field of circular economy and zero waste. Through the provision of data and local knowledge, access to verified experts across Europe, and the ability to use tools to help design and optimise zero waste strategies, MiZA will be a guide to municipalities throughout the certification process and beyond. Support will be provided each step of the way via both an online platform, several downloadable tools, and a network of local zero waste experts.

We believe that cities and communities hold the key for unlocking Europe's transition to a circular economy. We are creating both the Mission Zero Academy and the Zero Waste Cities Certification to provide local stakeholders - whether a municipality, waste management professional, or local zero waste group - with the confidence, support, and resources they need to work with their community to develop systems that transition away from the status quo towards ones that do not generate waste in the first place.

Watch out from early Spring 2021 when the Mission Zero Academy will be formally launched!



Future trends

The European Union has set itself on a path towards creating a society that is circular and carbon-neutral, and the implementation of this change is taking place at the local level. The vision and aim of Zero Waste Europe's Cities and Communities programme, spearheaded by the Cities Certification and guided by the work of our network of members, is to accelerate the transition towards zero waste at the city and community levels. This has driven the growth of Zero Waste Cities throughout the past decade, and will continue to be at the forefront of our work for the next 10 years and beyond.

Recent legislative developments will require local authorities to change gears and accelerate action in the coming years, with cities and communities as the driving force behind the progression towards a zero waste society in Europe - one where prevention and reuse policies are designed and implemented effectively, whilst separate collection and high quality recyclings have become the norm. Lowering waste generation levels has facilitated the phasing out of waste sent for landfilling or incineration, with increased recognition and emphasis placed on the positive impact this will have on achieving the EU's carbon-neutrality target by 2050.

The best thing is that the knowledge and ability needed to create this sustainable future for ourselves already exists. Zero Waste Cities provide the vehicle for implementing this change. In the words of Joan-Marc Simon, Executive Director of Zero Waste Europe, "if there is something that we have learnt from history, it is that what separates utopia from reality is, simply put, the political will to make it happen".

As Abraham Lincoln put it, "the best way to predict the future is to create it."



Dare to imagine a better future...
Read Joan-Marc Simon's blueprint for a healthy, thriving, zero waste world by 2040.



Conclusion

In the 13 years since Capannori decided to become the first zero waste community, we have witnessed the zero waste approach increasingly become part of the mainstream narrative within the European Union's legislative framework. Now, the ambition and targets written in formal texts need to be turned into effective and impactful local action. The decisions we take throughout the next 9 years will decide the future of this planet. As daunting as the challenges we face are, we can find confidence in the fact that the solutions already exist. Methodologies, practical guidance, and successful examples to replicate can be found for, and by, any municipality or community wishing to begin their own journey to zero waste.

Zero Waste Cities continue to shine a light on a way out of the problems we have created for ourselves today through our over-consumption and production patterns. They provide a roadmap for local and national governments to follow, with tangible policies and strategies to follow that lead the transition from waste to resource management. When applied locally and tailored to the specific context of a community, zero waste strategies are the means by which a community can redesign their relationship with nature. We know this because we have seen it happen throughout Europe over the past decade.

This report was designed as a thank-you to those who have so tirelessly continued fighting and pushing for action on zero waste over the past decade and more. To those who decided to break from the status quo. To those who envisaged a better world and decided to do what they can to turn it into a reality.

This is a collection of their stories, the impact zero waste cities have had, and the potential they have to transform our societies for the better.

We know that stories have the power to change the world for the better.

We hope that by reading ours, you are inspired to change yours.





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Zero Waste Europe is the European network of communities, local leaders, experts, and change agents working towards the elimination of waste in our society. We advocate for sustainable systems and the redesign of our relationship with resources, to accelerate a just transition towards zero waste for the benefit of people and planet.



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