

Creating a methodology for zero waste municipalities

Index

PART 1

**Introduction
to zero waste**

PART 2

**Key principles
of zero waste**

PART 3

**Ten pillars
of a local zero waste municipality
strategy**

PART 4

**What is the link
between zero waste and
the circular economy?**

PART 5

**Challenging some of
the myths surrounding
zero waste**

PART 6

**Waste assessment
methodology**

PART 7

**Waste management
assessment form**

PART 8

**Zero Waste Cities savings
calculator**

PART 9

Conclusions

PART 10

Try it yourself

PART 11

Learn more



Introduction to zero waste

PART 1

Zero
emissions
Zero
waste
ALL the
action

REBEL
FOR
LIFE



JOIN T
TOGETHER
CTOBER

Waste is one of the meta-problems of today's world. It is something that we all generate and manage on an everyday basis.

However, we cannot fix the waste challenge by just cleaning the mess or by better managing it, we need a new approach. One that goes to the root of the problem: redesigning our relationship with resources, rethinking how we produce, consume and the way we collectively take decisions. This new approach is zero waste.

Zero waste is a goal that is both pragmatic and visionary, local and global. Inspired by nature, the zero waste philosophy works in a systematic way with what is available in the community, helping to build local resilience and increase the natural capital available for future generations.

Our planet has always followed zero waste principles. Humans haven't. The climate emergency and plastic pollution crisis are evidence of that. Human beings have to learn to live within the boundaries of nature. Yet, what nature has done through evolution, humankind needs to do by design. This is why zero waste aims at rethinking the way we produce and consume, in order to preserve the value and energy embedded in materials, whilst enabling civilisation to flourish and prosper.

Zero waste is about designing waste - and the toxics and inefficiencies associated with it - out of the system. In a zero waste system, the value of materials and products is kept within the community where they are reused over and over. Recycling is important to close the loop but it should be seen as an end-of-pipe solution, for we cannot recycle our way out of a wasteful society. Any technology that doesn't allow for material recovery is deemed as unacceptable and should be phased out.

Zero waste goes beyond just being a vision of hope for the future. It provides tangible and accessible policies which, if implemented effectively at the local level, create a framework for communities to live sustainably whilst remaining prosperous.

Applying a zero waste approach enables us all to change the way we think about our consumption and production patterns. Resources and materials are viewed as commodities with high levels of value and worth, which must be kept within a circular economy through reuse, repair and recycling.

Zero waste is not only a blueprint for the protection of our environment, but it is also a framework where social cohesion and community collectiveness can thrive within. Through increased innovation to redesign products and rethink our relationship with resources, together with greater emphasis placed on the need for localising production patterns, municipalities can not only save costs on their waste management and protect the environment, but by adopting a zero waste approach they can foster community cohesion due to the increased number of jobs being created locally and by retaining money within the local economy.

This toolkit has been designed to help you understand what zero waste is and how to implement a zero waste strategy within your community. We hope you find it a useful tool on your zero waste journey.



Key principles of zero waste

PART 2

Throughout the world, urban and rural communities alike are adopting zero waste as a goal and are already working to achieve it. Zero waste programmes are the fastest and most cost effective tool with which local governments can help build local entrepreneurship, create green jobs, protect citizens from exposure to toxics, fight climate change and promote local sustainability, all whilst reducing the costs for the community.

There are two key factors necessary for a zero waste approach to succeed:

CULTURE CHANGE

Current European linear production, consumption and disposal patterns reflect the myth that we live in a world with infinite resources.

A change in paradigm is necessary and it needs to be embedded in all the actions that a city undertakes. This change of paradigm is consistent with the bigger societal trends. At the EU level for example, since the publication of the Circular Economy Roadmap in 2014, the legislative framework has been paving the way for this change to happen.

ENGAGING THE COMMUNITY

Community education and participation is indispensable for the success of any zero waste plan. Citizens should be invited to actively participate in the design of the resource management system and to monitor and provide feedback on its implementation. Public education campaigns to encourage citizen participation should be undertaken, and they need to be sustained over time. Local entrepreneurs should be invited to provide local solutions to help address local challenges.

The zero waste philosophy revolves around 3 principles:

- 1.Reduce and reuse**
- 2.Design for circularity**
- 3.Separate collection and closing the loop**

1st

PRINCIPLE

REDUCE AND REUSE

The best waste is the waste that is not produced in the first place. Intervention at the design stage therefore is key to preventing having to manage waste that shouldn't exist.

For example, food waste can be reduced with the right training, incentives and procurement policies in canteens, restaurants, hotels, hospitals or homes. Packaging free shops and local markets can prevent packaging and food waste whilst providing fresher food for consumers. Many beverages can easily be sold onto the market in reusable containers and cups, many of which already exist and are in use today for products such as milk and beer.

Most single-use packaging is superfluous and can be easily replaced with the right intervention at the city level. Coffee cups to go, containers for take-away food, throw-away water bottles or single-use straws are just a few examples of items that can be replaced with solutions that are waste less and bring income to the community. Such initiatives and examples include reusable cups or food containers, public water fountains and bans for problematic materials like plastic bags or expanded polystyrene.

City authorities can also play a key role in facilitating the roll out of important initiatives such as refillable systems for beverages and reuse systems for nappies, as well guaranteeing availability to alternative waste-free menstrual items in the local shops. For durable goods like electronics, furniture or clothes, it is key to encourage repair and reuse operations in the form of second hand shops, as well as promoting reuse activities and platforms, both offline and online.

Preventing waste from being generated at the local level can also be achieved through using the purchasing power of public procurement to change the market. Cities and municipalities should establish positive initiatives, such as paperless offices, material banks and public libraries for tools to help foster a reuse and repair culture within their region.

2nd PRINCIPLE

DESIGN FOR CIRCULARITY

Products and packaging should be designed not to become waste and retain as much value as possible at the end of their useful life. If a product can't be reused, repaired, refurbished, recycled or composted then it should be redesigned or taken out of the system.

Indeed, some substances in products or packaging can harm human health and other living creatures. If a product or packaging is not designed to be safely reintroduced into the production cycle, its recirculation as a secondary raw material can endanger the technical performance of recycling systems and the items using this recycled content.

Therefore, a zero waste system needs to be able to detect these potential wasteful substances and design alternatives so they can be managed within a circular system. Contrary to current waste systems, zero waste makes waste very visible, because if we don't know what the problem is we will not be able to find a solution. Consequently, residual waste should be constantly studied in local screening facilities so that non-recoverable products can be either redesigned or removed from the market.

From the design stage, it should be clear whether the product or packaging should be part of the biological cycle (products for consumption) or part of the technical cycle (products for service). As a general principle, products or packaging that mix technical and biological components are very difficult to digest by current resource management systems and hence they should not be allowed onto the market, unless it is very clear how they are going to be separated to undergo different recycling operations.

There can be cases in which some materials and products are designed for circularity but the waste collection and treatment systems are incapable of managing them. In these cases, the producer should set up its own reverse logistics system to ensure that they are effectively recycled.

3rd PRINCIPLE

SEPARATE COLLECTION AND CLOSING THE LOOP

If preventable waste is avoided and the non-preventable is designed for circularity, then the only thing that is left to do, in order to reintroduce the resource back into the production cycle, is to collect the material/item in the most effective way to ensure that its value is preserved for its next use.

In this respect, source separation of at least organics, recyclables, reusable products and residual waste should be the **minimum separation allowed**. Currently, examples in Europe show that implementing effective separate collection systems can achieve recycling rates of 80% of the municipal waste.

The most powerful and effective tools to ensure both the highest capture rates and the clean separation of materials at the lowest cost are kerbside collection and deposit and refund schemes.

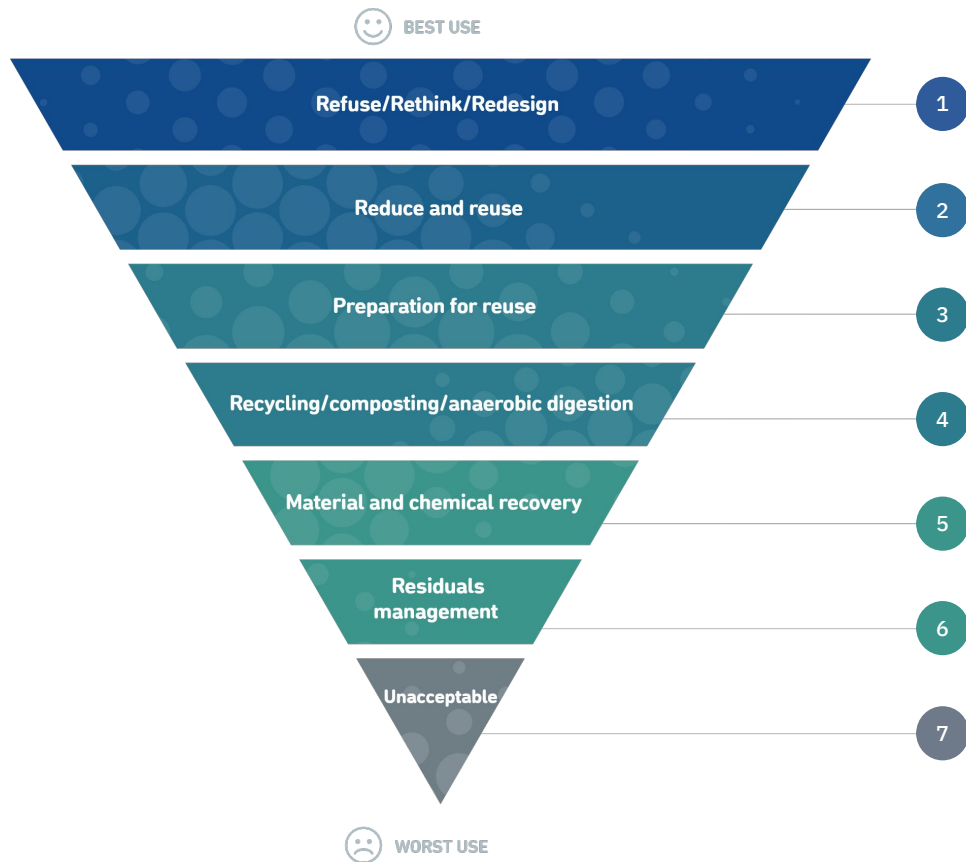
Doing the right thing, by sorting waste, should be cheaper and easier than doing the wrong thing. Any system which relies solely on the commitment of the people to do the extra effort is not going to work. Price incentives should be promoted as a key driver of behavioural change and excessive generation of waste should be penalised by the local authority. Systems such as Pay-As-You-Throw, which are already being effectively implemented in some European municipalities, are designed so that local residents who generate less waste save costs through reduced taxes. Current experiences from numerous examples across the world show that citizens collaborate when the system is designed by and for them.

Separate collections schemes should be co-financed by the producers of the product that is to become waste. Hence, next to the price incentives for citizens to do the right thing, there should be an extended responsibility for producers to cover for the cost of the collection and treatment of the waste that is generated as a result of putting their product or packaging into the market. Thus incentivising the creation of easily repairable, reusable or recyclable materials.

The fees paid by producers should be eco-modulated depending on the ease to reintroducing the waste into the production cycle as secondary raw material. In other words, the fees paid towards the management of electronic waste should be managed in a system that rewards producers for their efforts in designing their products to mitigate their impact on the environment, or to provide disincentives for marketing less environmentally-friendly products.

If separate collection is done properly then resources keep their value and they can be recycled into secondary raw materials. When done at scale, this allows for the creation of material banks which can become the urban mines of the future.

Change the infrastructure to align with the new paradigm. Disposal infrastructure, such as landfills or incinerators, should be phased out as waste generation decreases and recycling rates increase. Flexibility is vital in zero waste and as a result, cities' contracts and waste plans should not be restricted by the inability to adopt new policies which would help the transition towards zero waste. The interim solution for residual waste is to allow a minimum percentage of biologically stabilised fraction to be safely landfilled.



1

REFUSE/RETHINK/REDESIGN

Refuse what we don't need and change the way we produce and consume by redesigning business models, goods and packaging in order to reduce resource-use and waste.

2

REDUCE AND REUSE

Minimise the quantity, toxicity and ecological footprint and any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

3

PREPARATION FOR REUSE

Checking, cleaning or repairing operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing.

4

RECYCLING/COMPOSTING/ANAEROBIC DIGESTION

High quality material recovery from separately collected waste streams

5

MATERIAL AND CHEMICAL RECOVERY

Technologies to recover materials from mixed waste into new valuable materials in an environmental sound way.

6

RESIDUALS MANAGEMENT

What cannot be recovered from mixed waste is biologically stabilised prior to landfilling.

7

UNACCEPTABLE

Options that don't allow for material recovery, have high environmental impact and create lock in effects that threaten the transition to Zero Waste: waste to energy incineration, co-incineration, plastic to fuel, landfilling of non-stabilised waste, gasification, pyrolysis, illegal dumping, open burning and littering

The background image is a high-angle, blue-tinted photograph. The top half of the image is dominated by a massive, sprawling pile of waste, including crumpled paper, cardboard, and other debris. Below this pile, a group of approximately 15-20 people are gathered on a concrete floor. Many of the people are wearing white safety vests over their clothing. They appear to be engaged in a group activity or a tour. In the lower right, a wooden staircase with a railing leads downwards. The overall scene suggests a waste management or recycling facility where a community or educational group is participating in an activity.

Ten pillars of a local zero waste municipality strategy

PART 3

1

CONSOLIDATE YOUR ZERO WASTE IDENTITY BY IDENTIFYING YOUR ZERO WASTE COMMITMENT

- Publicly make your zero waste pledge
- Conduct preliminary public consultation

2

ESTABLISH THE TOOLS TO MONITOR AND SUPPORT

- Zero waste advisory board with local stakeholders
- Empower the relevant civil servants with education and training on zero waste
- Collect data on waste generation and recycling rates, from which you will measure the impact of your zero waste plan against

3

DEFINE YOUR ROADMAP

- Design your zero waste plan, which must include specific goals for the short, medium and long term to reduce residual waste (in kgs/person), as well as outlining the key steps you will take to achieve these goals

4

DESIGN AND ROLL OUT KERBSIDE COLLECTION WHICH MUST COVER, AT THE VERY LEAST, THE FOLLOWING KEY AREAS:

- Organics
- Dry recyclables (paper, cardboard, glass)
- You should also create municipal recycling centres for items that are too expensive for or can not be incorporated into regular kerbside collection rounds, such as light bulbs, construction and electronic waste.

5

REFINE YOUR STRATEGY TO OPTIMISE ORGANICS MANAGEMENT. DEPENDING ON YOUR LOCAL OPERATIONAL AND ORGANISATIONAL CONTEXT, THIS MAY INCLUDE

- Home composting
- Community led composting centres
- Decentralised composting systems organised by a municipality
- Centralised professional composting systems, for handling organic waste on a larger scale, ideal in densely populated cities
- Whenever home/decentralised composting is not possible, consider industrial composting, or if local conditions require/allow, anaerobic digestion

6

DEFINE AND PROMOTE LOCAL WASTE PREVENTION INITIATIVES, SUCH AS:

- Packaging free shops
- Refillable water centres
- Reusable cloth nappies
- Zero waste public procurement
- Regulations to encourage plastic free lifestyles, such as bans on plastic bags or straws.

7

PROMOTE REUSE/REPAIR CENTRES, EITHER AT MUNICIPAL OR DISTRICT LEVEL

- Work with the local community to establish centres where products and resources can be reused by another community member or repaired by a local expert

8

SUPPLEMENT YOUR PLAN WITH LAWS AND REGULATIONS THAT ECONOMICALLY INCENTIVISE AND ENCOURAGE WASTE PREVENTION

- Pay-As-You-Throw (PAYT)
- Deposit Return Schemes (DRS)
- Extended Producer Responsibility (EPR)

9


ANALYSE RESIDUAL WASTE AND USE THE DATA TO FEEDBACK AND IMPROVE THE SYSTEM

- Create a system that allows the composition of your residual waste to be regularly analysed to examine which materials/resources are most problematic
- Use this data to improve the efficiency of your collection schemes, making harder to recycle materials more visible
- Feed this information to businesses and industry to influence the industrial design of products and packaging, encouraging uptake in recyclable and non-harmful resources

10

ADOPT, OR PROMOTE, IF LOCAL REGULATIONS DO NOT ALLOW YOU RIGHT AWAY, MORE EFFICIENT SYSTEMS TO MANAGE RESIDUAL WASTE THAT:

- Select and research residual waste streams
- Recover more recyclable materials
- Stabilise untreated organic waste
- Use transitional landfill capacities for pretreated waste
- Flexibly manage and adapt pre-treatment sites into compost and recycling ones



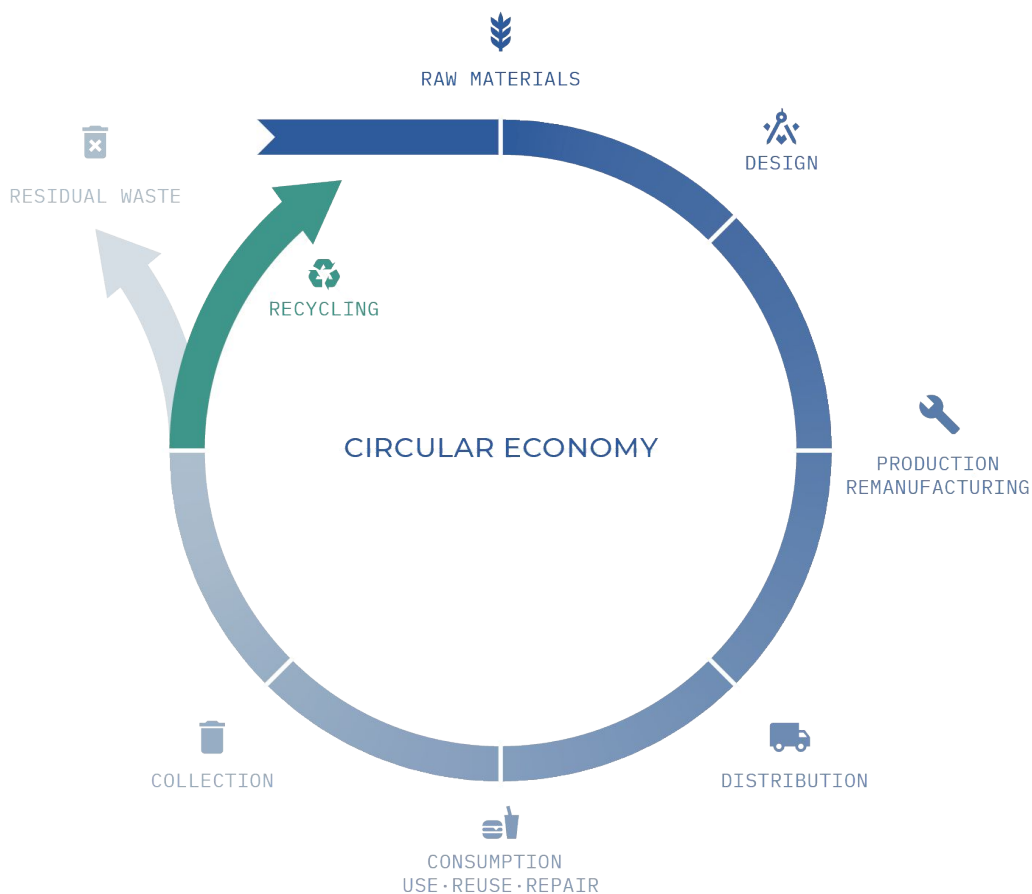
What is the link between zero waste and the circular economy?

PART 4

According to the [European Parliament](#), a circular economy is defined as:

“

A production and consumption model which involves reusing, repairing, refurbishing and recycling existing materials and products to keep materials within the economy wherever possible. A circular economy implies that waste will itself become a resource, consequently minimising the actual amount of waste. It is generally opposed to a traditional, linear economic model, which is based on a ‘take-make-consume-throw away’ pattern.”



The Circular Economy diagram

In 2015, by adopting the EU action plan for the Circular Economy, the European Union decided to adopt the concept of circularity as a leading principle in order to drive effective resource management, industrial growth and sustainable consumption and production across Europe.

The circular economy in Europe is based upon 4 principles:

1. **Modifying production and consumption habits**
2. **Improving waste management**
3. **Enabling the secondary raw material market**

And all of this while...

4. **Stimulating the economy and creating jobs**

Circular economy monitoring framework

1 EU self-sufficiency for raw materials

The share of a selection of key materials (including critical raw materials) used in the EU that are produced within the EU

2 Green public procurement

The share of major public procurements in the EU that include environmental requirements

3a-c Waste generation

Generation of municipal waste per capita; total waste generation (excluding major mineral waste) per GDP unit and in relation to domestic material consumption

4 Food waste

Amount of food waste generated

7a-b Contribution of recycled materials to raw materials demand

Secondary raw materials' share of overall materials demand - for specific materials and for the whole economy

8 Trade in recyclable raw materials

Imports and exports of selected recyclable raw materials



5a-b Overall recycling rates

Recycling rate of municipal waste and of all waste except major mineral waste

6a-f Recycling rates for specific waste streams

Recycling rate of overall packaging waste, plastic packaging, wood packaging, waste electrical and electronic equipment, recycled biowaste per capita and recovery rate of construction and demolition waste

9a-c Private investments, jobs and gross value added

Private investments, number of persons employed and gross value added in the circular economy sectors

10 Patents

Number of patents related to waste management and recycling

Yet, although the overall strategy to turn the European Union into a “Resource Efficient Europe” has been adopted, many challenges still remain to be addressed. Current research estimates the EU has 12% of circularity, meaning that 88% of the used resources are not recovered after use. Globally, we are now only 8.6% circular, a decrease in the past two years, according to the [2020 Circularity Gap Report](#).

Priority within the challenges we face is the question on how the translation to a circular economy can be meaningfully implemented on the ground. It is increasingly evident that zero waste strategies perfectly integrate the circular economy narrative into local level solutions, providing concrete guidelines and policies that municipalities can implement within their communities to ensure a healthier environment.



Zero waste communities are living examples of the Circular Economy, its viability and its environmental, economic, and occupational benefits.

Karmenu Vella

Former EU Commissioner for the Environment
Maritime Affairs and Fisheries

As the circular economy is now becoming increasingly part of mainstream narratives and decision-making within Europe, zero waste is consequently increasingly being recognised as the main vehicle for translating this concept into practical solutions and realities. With over 400 municipalities having already committed to zero waste strategies across Europe, zero waste is already proving to be the perfect embodiment of circularity at local level.

A key cornerstone and essential precondition for any economy which intends to be circular is an effective waste management and recycling system. Recent amendments to the European waste legislation, following the groundbreaking circular economy action package, established legally binding targets regarding waste management and recycling rates.

	2025	2030	2035
Minimum recycling and preparation for reuse of MW	55%	60%	65%
Maximum landfilling of MW	N/A	N/A	10%
Minimum recycling of packaging waste	65%	70%	N/A
Plastic	50%	55%	N/A
Wood	25%	30%	N/A
Ferrous metals	70%	80%	N/A
Aluminium	50%	60%	N/A
Glass	70%	75%	N/A
Paper and cardboard	75%	85%	N/A

Waste management obligations laid out in [Directive \(EU\) 2018/850](#), [Directive \(EU\) 2018/851](#) and [Directive \(EU\) 2018/852](#)

Alongside those objectives, several recommendations and provisions have also been adopted to improve circularity across Europe. These include the extension of mandatory separate collection requirements to other waste streams, including biowaste by 2023 and textiles by 2024, as well as the the adoption of waste prevention and food waste prevention plans.

While those objectives have been fixed at the European Union level for all the current 27 member states, their very practical consequences and obligations will ultimately be observed and decided at the local level, as it is cities and municipalities which are responsible for implementation, given that this where waste management competency often sits.

The growing network of zero waste cities in Europe is living proof that these European obligations and targets are not only achievable, but that it is feasible to go beyond such goals, not only in terms of increasing recycling capacities but also in promoting sustainable and decentralised waste treatment systems, resulting in the reduction of overall waste generation.

All over Europe, cities which have adopted a zero waste plan clearly show high results in terms of increasing separate collection rates and a decrease in the overall level of residual waste generated by residents. These cities also achieve good results in many important fields that underpin the circular economy, through the implementation of decentralised and community-based solutions, such as reuse centers or community composting.

Zero waste cities therefore are not only ensuring compliance with European Union legislation, but they are going far beyond this, building community and social cohesion by adopting locally tailored policies that keep money within the community's economy, which is more circular, as well as creating 'green' jobs for local residents, with the need for more capacity in recycling and waste prevention.



SOURCE
 Contarina 2018
 Rapporto Rifiuti ISPRA 2018 (dati 2017)

Growth of separate collection rates in municipalities managed across Treviso and Veneto regions by Contarina, an Italian waste management company which was one of the first in Europe to adopt a zero waste approach.



Challenging some of the myths surrounding zero waste

PART 5

More often than not, changes and progress within our society do not occur because we do not fully understand a topic, afraid by the complexity of emerging issues and the size of the challenges we face. In too many cases, action isn't taken and ambition remains low because a narrative has been created that's based upon negative myths and false facts. This prevents communities, organisations and individuals from understanding the full picture, prolonging the discovery and implementation of the solutions needed to overcome the urgent problems we face today.

In order to accelerate the transition towards zero waste across European communities, citizens need to be made aware of the facts. Unfortunately in our work, far too often we encounter myths and fake truths that discourage meaningful action being taken to tackle the vast amount of waste that we currently generate. Ranging from the "unattainable" goal of zero waste to incineration being carbon neutral and many more, there are many misunderstandings currently surrounding the narrative and concept of zero waste that need clarifying.

Here, we debunk some of the common myths surrounding zero waste to help you and your municipality challenge and overcome the misunderstandings that exist on this topic.

1st MYTH

"We are already (working on) zero waste"

Many businesses and cities are claiming today that they are already zero waste, or that they are taking meaningful steps on the journey to zero waste. Whilst it is true that many institutions and municipalities are taking action on some waste related issues, often this stops far short of being near the true definition and value of zero waste.

The substitution of one material, such as plastic, for another material, such as paper, is often depicted as an effective zero waste policy but in reality it keeps pushing the burden of over-consumption onto a different part of our environment, such as forestry for paper, without challenging our single-use throwaway culture.

For a business or a municipality to accurately claim that they are working towards zero waste, they must take a holistic approach to consumption and production. It requires a community-wide approach, introducing broad measures that range from analysing separated residual waste to establishing reuse centres and an overhaul of the way many products are designed, tackling the issue further upstream to prevent waste being generated in the first place.

2nd MYTH

“Zero waste is unrealistic, unattainable and unachievable”

Often people discredit zero waste as an unrealistic vision or goal we set ourselves, deliberately misunderstanding the concept to be one that envisages humans creating no waste. As mentioned before, zero waste is rather about designing waste - and the toxics and inefficiencies associated with it - out of the system. Any technology that doesn't allow for material recovery is deemed as unacceptable and should be phased out. Rather than a destination, zero waste is a journey, one that is being increasingly adopted throughout the world by both urban and rural communities. Zero waste not only reduces our pollution and helps to fight climate change, it provides communities with tangible opportunities to foster local entrepreneurship and jobs within the community.

The reality of zero waste can be seen across the world with momentum building and an increasing number of locally-ran programmes being implemented. In Europe, over 400 municipalities have openly committed to the goal of continuously reducing waste generation and improving waste separate collection.

The growth and success of zero waste cities in Europe shows that zero waste is an approach that applies real, impactful policies on the ground in communities. Across the Asia-Pacific region too, there are hundreds of cities and communities who have developed and implemented innovative zero waste programmes, with momentum spreading throughout the US, Latin America and Africa, with increasing amounts of communities implementing concrete and tangible policies towards zero waste, proving that it is in fact a realistic, attainable and achievable vision.

3rd MYTH

“Separating waste for collection is too complicated for citizens”

The separate kerbside collection of waste is a crucial element for municipalities taking their first steps on the road to zero waste. There should be a minimum separation of at least organics, recyclables, reusable products and residual waste. Examples in Europe show that recycling rates of at least 80% can be achieved through implementing an effective separate collection system for municipal waste.

When introducing such a system, a municipality must provide clear and concise information for citizens to encourage separation. Citizens must be made aware of the different streams of waste being collected and the products which go within each stream, as well as when and where the collection will take place. With this information clearly communicated to the local community, evidence across the world shows that citizens engage fully in such separate collection systems, leading to large increases in the rate and quality of recycled materials.

The challenges surrounding the separation of waste come mostly from manufacturers who provide clear or misleading information on their labelling, such as the emerging theme of “biodegradable plastics” which in many cases are not degradable and end up spoiling existing organic waste treatment and composting.

4th MYTH

“Businesses can’t be persuaded to engage”

In the journey towards zero waste, it is imperative to bring the community with you, and a crucial part of that are businesses and industry.

Zero waste requires a rethink of the current system to redesign business models that do not produce waste. Whether that’s restaurants connecting with the community to prevent food waste by sharing it with those who need extra, hotels using reusable containers instead of single-use plastic, or construction companies reducing their waste by sharing materials for reuse and repair with local community members - examples of community-led redesigning of business models are evident in our everyday lives already.

“Rethinking or redesigning business models” can often be a scary phrase for businesses to hear. However, what we are seeing throughout the world is that businesses are ready and willing to play a leading role in the transition towards zero waste at the local level.

The story of PHENIX in France shows that it’s possible to prevent food waste, save money and create jobs at the same time. Whether businesses are willing to act themselves, or whether they require legislation or economic incentive to do so depends on a case by case basis. What is clear however is that many businesses around the world are utilising the opportunity that zero waste and the circular economy present.

One clear example of this is the huge growth in zero waste, bulk produce and packaging-free shops, driven by the realisation and market potential for businesses that meet the growing consumer demand for sustainable, ethical and zero waste products.

5th MYTH

“No one will pay for a deposit”

Deposit Return Systems (DRS) have proven to be the most effective and sustainable way to transition towards a zero waste society, by retaining the value of products by reusing their materials over and over, with recycling as a last resort.

Deposit Return Systems are based upon consumers buying a product and paying an additional amount of money (a deposit) that will be reimbursed upon the return of the packaging or product to a collection point. The system is based on offering an economic incentive for consumers to return empty containers to any shop or collection point, to ensure that the product will be reused or recycled. For beverage containers, these systems are already operating in more than 40 regions worldwide with great results. However, DRS are not just limited to beverage containers.

In Switzerland, [the social enterprise Recircle](#) provided a sustainable alternative to disposable containers for food to go, by creating a system of reusable lunch boxes that restaurants can offer customers with a deposit scheme.

A deposit scheme has also been successfully [integrated in Freiburg for coffee cups](#) and by [RePack, introducing a closed-loop reusable system](#) to tackle the growing challenge posed by e-commerce waste.

[The DRS Manifesto](#) highlights numerous examples of why Deposit Return Systems should be implemented in cities and municipalities, but one strong argument that stands out is that public support rates for DRS are currently above 80%. Businesses are recognising this, with large companies such as [Loop](#) already implementing DRS, whilst an increasing number of countries implement it nationwide already, [as is the case in Norway](#).

6th MYTH**“Zero landfill is zero waste”**

Zero waste goes to the root of today's mass overconsumption and overproduction crisis, by redesigning our relationship with resources and the way we take decisions collectively. Yet there is a growing narrative and worrying trend developing that accepts the notion that no landfilling of residual waste is the equivalent to zero waste.

Often when there is no waste that is stabilised and then sent to landfill, residual waste has been sent for incineration instead. Incinerators are facilities that treat waste by burning it, the process of which merely transforms waste from one identity to another, such as toxic ash or air and water pollution, which are harder to contain and usually more toxic than the original form of the waste.

Therefore it is simply not true when a municipality or city claims their “zero landfill” approach is zero waste, as in fact they are prolonging the problem and embedding it further within communities by increasing incineration capacity.

Not only does incineration lead to more toxic waste and greenhouse gas emissions, incineration facilities are often built in low-income communities, burdening citizens with harmful toxins and undermining potential future investments and growth for the local economy.

Municipalities should adopt policies and commitments to not increase their incineration capacity. Through the implementation of effective separate collection systems that can lead to recycling rates of 80% and beyond, as is the case in European zero waste cities today, combined with strong waste prevention measures, a municipality can achieve the 10% landfill maximum by 2035 (as required by EU law) whilst also continuing to phase out waste incineration.

7th MYTH

“Waste-to-Energy incineration is carbon neutral and sustainable”

There are a new generation of incinerators around the world which are being framed as safe, sustainable and sometimes even carbon neutral by governments and waste companies. Among the most aggressively promoted incinerators are “waste-to-energy” facilities, which create energy and heat through the process of burning waste. Many of today’s incinerator companies claim that they can safely, cost-effectively, and sustainably turn any type of material such as household trash, tires, medical waste, forest matter, and hazardous waste into electricity and fuel.

With these false claims, “waste-to-energy” incinerators often seek climate or renewable energy subsidies, and are reported within governments’ climate change mitigation plans. However, extensive studies and current data proves that this premise is without scientific basis. The process of incineration merely transforms the waste into other forms of waste, such as toxic ash or air and water pollution, which are harder to contain and usually more toxic than the original form of the waste.

Recent developments within the EU showcase the growing recognition that waste-to-energy incineration is not compatible with its circular economy and decarbonisation agendas. For example, in 2019 the European Parliament voted to limit the amount of European Cohesion funding which can be used to support waste incineration. That same year, the European Investment Bank decided against funding a planned incinerator in Belgrade,, as it “would prevent Serbia from achieving its environmental targets on recycling and the circular economy.” Whilst in 2018, binding amendments were made to EU’s Renewable Energy Directive which restricts Member States’ ability to subsidise incineration as “green energy.”

Not only do modern incinerators also emit more extensive levels of carbon dioxide per unit of the electricity they make, they are also the most expensive way to make electricity. For example, [the carbon intensity of electricity produced by European incinerators](#) are twice the current European Union average electricity grid intensity.

8th MYTH**“Implementing a zero waste programme will be too expensive”**

If a zero waste approach is adopted at the local level, with separate collection leading to increased recycling rates and more products being reused or repaired rather than disposed, this will immediately result in a drop in the amount of waste to manage for a municipality.

With less litter to manage and send for landfilling or incineration, this will in turn not only reduce your impact on the environment but it will also lead to a reduction in the amount a city has to spend on waste collection. This therefore frees up more money that can either be used to reduce fees/taxes on citizens, or to be spent on public services within the local community, helping to foster greater levels of social integration and innovation.

For instance, after having implemented its zero waste strategy, the city of Parma saw a reduction in annual waste management costs of 450,000 Euros.

9th MYTH**“My municipality does not have the competencies to push for zero waste”**

Zero waste is a holistic approach that requires action along the whole production and consumption chain. Some cities or local authorities do not have the required waste management competency or power to take action, yet that is not a reason not to do anything as there are many options still available left for municipalities to take action on.

For example, the city of Roubaix in France is not in charge of their waste collection and treatment, however they still implemented a zero waste family challenge that incentivised citizens to reduce the amount of waste they produced, with significant results, whilst also leading to increased awareness levels from citizens of the environmental impact their consumption habits have.

Local authorities are also responsible for what happens within their public spaces, and therefore subsequent actions can be taken to regulate these spaces, initiating ideas and solutions to encourage the prevention and generation of waste, such as separate collection bins and the installation of water fountains. For example, cities such as [Vilnius](#) and [Geneva](#) have adopted bans on single-use plastic within public spaces.

For any municipality or waste management officials that are unsure of how to begin designing a zero waste programme, or specific technical questions regarding certain aspects of the programme, Zero Waste Europe and its members provide an extensive knowledge bank of resources and local expertise to help guide you throughout your journey. You can view these publications and resources via both the [Zero Waste Europe](#) and [Zero Waste Cities](#) websites, where you will also find a list of national coordinators who you could contact for expert advice and support within your country.

10th MYTH

“Waste generation is not linked to climate change”

Zero waste forms an integral part of the circular economy, by reusing and recycling materials so that they stay within the community instead of extracting new resources for the production of products, ultimately reducing the amount of materials we demand and need.

In the context of climate change, zero waste the circular economy are particularly relevant as they result in a reduction in the volume of resources we extract and consume, for example oil to make plastic, as well as the energy consumed in the associated processes, such as oil refining and transportation.

Since there is less waste to manage, there is therefore less reliance and usage of waste treatment operations, such as landfilling or incineration, that emit high levels of greenhouse gases. [For example](#), increasing quantities of municipal solid waste (MSW) are incinerated for energy generation in Europe today. The latest data from Eurostat shows that approximately 70 million tonnes of MSW was incinerated in 2017, 118% more than in 1995. This equates to between 49 and 119 million tonnes of CO₂ released by MSW incinerators in 2017.

Several specific waste prevention measures, such as reducing food waste, also have a high impact of reducing GhG emissions. Creating a sustainable food system, [from farm to fork](#), that designs food waste out of the system, is in fact one of most pressing and urgent challenges facing European society today. If done correctly, this would have a hugely positive impact, not only in reducing GhG emissions but also in protecting and restoring biodiversity systems.

A group of approximately 15 people, mostly women, wearing white safety vests and hard hats, are standing in a long, narrow industrial corridor. They are gathered in the center of the corridor, looking towards the left. On the left side of the corridor, there is a large piece of industrial machinery with a large motor and various pipes. The corridor is lined with white walls and has a concrete floor. The lighting is bright, and the overall atmosphere is professional and industrial.

Waste assessment methodology

PART 6

A household waste assessment is a, methodical and robust process of collecting & analysing waste in your local area. The process of a waste assessment provides an excellent opportunity for municipalities to gather important data on the amount and types of waste generated in your community. This information can then be used to inform your waste management & prevention policies, including the size and design of your local recycling and material recovery facilities and how to best manage organic waste and encourage composting; as well as informing policy makers how often waste needs to be collected and by what methods.

Building on existing tools, we have created an accessible and informative guide for citizens and municipalities to conduct a waste assessment within your community as part of this toolkit.

It is a step by step guide on the methodology of implementing a waste assessment. Whilst the tool focuses primarily on households, the same methodology can be easily replicated in schools, restaurants and businesses who wish to begin taking steps towards zero waste.



The waste assessment and brand audit methodology guide is free to use

Download it now from the Zero Waste Cities website.

A row of five green recycling bins with black lids is lined up on a cobblestone street. The bins have labels with the 'AcegasApas' logo and various recycling symbols. The background shows a row of trees and a building. The entire image has a blue tint.

Waste management and assessment tool for municipalities

PART 7

Whilst we encourage municipalities to analyse all the different streams of waste that exist within their area, there are several benefits of focusing on municipal solid waste (MSW) as a first step, since the task will provide a useful overview and baseline of data from which effective waste reduction policies can be created from.

Municipal waste also does not vary or differ as significantly as commercial and industrial waste does, when economic activity ranges throughout the year, so the measured numbers are much more comparable across cities and states, therefore making it a useful tool for municipalities who want to implement effective zero waste policies at the local level.

The definition of municipal waste used in different countries varies, reflecting diverse waste management practices. However, when we refer to municipal solid waste, we refer to the waste that is produced by households, though waste from businesses, schools, hospitals and public institutions are all included, as they are similar in nature and composition to household waste.

Municipal solid waste also includes:

- Bulky waste (e.g. white goods, furniture, mattresses)
- Garden waste, leaves, grass, trash from bins and waste from shops cleaning
- Waste from some public services like waste from parks and gardens maintenance, and waste from road cleaning

However, the following waste streams are excluded from the definition:

- Waste from sewer networks and similar, including waste from waste water treatment
- Construction and demolition waste

Building on the waste assessment tool highlighted previously in this toolkit, we have developed a more thorough and in-depth analysis of the entire municipal solid waste composition. This will be helpful for municipalities to develop a holistic approach to waste management and recycling.

How to use this tool

This section has been designed as a tool to support municipalities conduct an assessment of their municipal solid waste. Whilst the data remains with those who have the relevant competencies locally, the tables below can be used as templates to guide the collation of data on the level of municipal waste generated within your community.

Once the four sections have been filled in, municipalities and stakeholders will have the necessary data, in an accessible format, in order to begin assessing the municipal solid waste within the community.

Assessing and analysing MSW is highly important for increasing levels of understanding and awareness on the most problematic waste streams within the community, providing you with a platform and position from which you can design and implement an effective zero waste programme.

1. Separate collection system

Waste streams collected using door-to-door (household) systems:

WASTE TYPE	FREQUENCY OF COLLECTION E.G 1X OR 2X A WEEK
Mixed municipal solid waste	
Organic kitchen waste	
Mixed packaging (plastic, metal)	
Paper and cardboard packaging	
Bulky waste	
Garden waste	
Others?	

Waste streams collected at the kerbside (on the street)

WASTE TYPE	FREQUENCY OF COLLECTION
Mixed packaging	
Paper and cardboard packaging	
Glass packaging	
Clothes	
Others?	

Waste streams collected through special actions/collections

WASTE TYPE	FREQUENCY OF COLLECTION E.G 1X OR 2X A WEEK
Bulky waste	
Oils	
Hazardous waste	
Others?	

Waste streams collected at collection centers

How many collection centers currently operate within your municipality?
(Where individuals will travel to drop off their waste)

Which waste streams do they accept?

2. Treatment of separately collected and residual waste

Specify the percentage of the total waste generated in your municipality that:

a) Is sent to be recycled into new materials

 %

b) Is sent for incineration

 %

c) Is sent for landfilling

 %

3. Disaggregating the municipal solid waste (MSW)

Required data needed for this exercise: (ideally for the past 2-5 years)

- Municipal solid waste generation total and per capita
- Mixed municipal solid waste generation total and per capita
- Percentage of waste that is separately collected

YEAR	NUMBER OF RESIDENTS	TOTAL MSW LEVELS	MSW PER CAPITA	% OF MSW THAT IS SENT TO LANDFILL	% OF MSW THAT IS MIXED WASTE	% OF ALL MSW THAT IS SEPARATELY COLLECTED
2015	<input type="text"/>	<input type="text"/> kg	<input type="text"/> kg	<input type="text"/> %	<input type="text"/> %	<input type="text"/> %
2016	<input type="text"/>	<input type="text"/> kg	<input type="text"/> kg	<input type="text"/> %	<input type="text"/> %	<input type="text"/> %
2017	<input type="text"/>	<input type="text"/> kg	<input type="text"/> kg	<input type="text"/> %	<input type="text"/> %	<input type="text"/> %
2018	<input type="text"/>	<input type="text"/> kg	<input type="text"/> kg	<input type="text"/> %	<input type="text"/> %	<input type="text"/> %
2019	<input type="text"/>	<input type="text"/> kg	<input type="text"/> kg	<input type="text"/> %	<input type="text"/> %	<input type="text"/> %
2020	<input type="text"/>	<input type="text"/> kg	<input type="text"/> kg	<input type="text"/> %	<input type="text"/> %	<input type="text"/> %

4. Existing measures for encouraging the reduction of waste

The Waste Framework Directive (2008/98/EC) defines waste prevention measures as measures taken before a substance, material or product has become waste, that reduce:

- the quantity of waste, including through the re-use of products or the extension of the life span of products
- the adverse impacts of the generated waste on the environment and human health; or
- the content of harmful substances in materials and products

Existing measures within the community that encourage the reuse of products & materials:
(list and briefly describe)

Existing measures within the community that encourage waste prevention:
(list and briefly describe)

Existing economic measures that encourage waste reduction (e.g. pay as you throw):
(list and briefly describe)

Existing mechanisms for informing and educating the local population, companies, institutions and visitors (tourists) about waste management practices:
(list and briefly describe)

A person wearing a high-visibility vest stands in the foreground, looking towards a large pile of waste. The waste is piled up against a corrugated metal wall. The background shows a clear sky and some trees. The entire image has a blue tint.

Zero Waste Cities savings calculator

PART 8

As we have mentioned above, by switching to a zero waste strategy, municipalities can immediately begin reducing the costs of their waste management.

The Zero Waste Cities savings calculator has been designed to help you visualise and understand the benefits that adopting zero waste policies can bring to your local area.

Together with this toolkit, we have developed an informative and accessible online calculator for you to see just how much money your municipality could save by adopting a zero waste strategy, through the implementation of a kerbside separate collection system in combination with waste prevention measures.



Access the Zero Waste Cities saving calculator

All that is required is that you input some simple information regarding your city or town's population and the ambition of its current plans to go zero waste, as well as key data on current waste generation and management levels, including costs, within your municipality. The calculator will then automatically showcase the potential cost savings for your municipality, providing a real life comparison example with cities in Europe.

The results will not only provide you with approximate cost savings, but importantly it will also showcase the potential decrease in Greenhouse Gas (GhG) emissions that a switch to zero waste policies would result in for your municipality. The incineration and landfilling of waste results in large levels of GhG being emitted into the atmosphere, the key driver behind our rapidly warming world and changing climate.

By committing to become zero waste, municipalities are not only showcasing their leadership and willingness to tackle the existential threat that climate change poses, but they are also helping to empower their community, with extra money and job generation remaining within the local area.

A photograph of a large crowd of people participating in a protest or demonstration on a city street. In the foreground, a person with long dark hair is seen from behind, holding a large white sign that reads "THERE IS NO TIME TO WASTE" in bold, black, sans-serif capital letters. The person is wearing a dark long-sleeved shirt and has several bracelets on their right wrist. The crowd extends into the distance, with many other participants visible. The background features tall city buildings, including a modern glass-fronted skyscraper on the right. The entire image has a blue color cast. A vertical line is positioned to the left of the word "Conclusions".

**THERE
IS NO
TIME TO
WASTE**

Conclusions

PART 9

This toolkit has been designed collaboratively by Hnutí DUHA, Ekologi Brez Meja and Zero Waste Europe with the aim of providing an introduction to some of the key principles of what zero waste is today. The toolkit covers the concept of zero waste, its guiding principles, 10 clear steps for designing a zero waste plan at the municipal level and a challenge to some of the myths and fiction surrounding the narrative on zero waste.

The toolkit also includes some practical activities to provide readers with an opportunity to develop and manage key information regarding the implementation of zero waste strategies at the local level.

The waste assessment tools help define and explain the necessary steps needed, and importance of, analysing the residual waste of households within a municipality. Having access to and understanding this data is crucial for municipalities, so that effective community-specific zero waste plans can be designed to ensure they have the greatest impact.

The online calculator tool also provides users with an excellent opportunity to visualise and experiment with different data sets regarding the benefits of zero waste policies at the local level. With the tool, users can see the impact that increased recycling and separate collection can have on levels of waste generation, the costs this would save the municipality as well as the reduction in greenhouse gas emissions which are the biggest contributors towards climate change.

This toolkit has been designed both as a starting point for those interested in zero waste and how this can be implemented at the local level, but also for those municipalities already implementing waste reduction policies but who are looking to optimise and improve these further.

Across Europe, there is an increasing awareness on the need to address our current consumption and production patterns, moving away from a linear economy to one that is more circular, where the value of materials and resources are kept within the local community and not disposed of.

Yet we all need to do more if we are to succeed in changing societal patterns in order to reduce the devastating impact our current consumption and production methods are having on both the natural environment and climate.

The vision and methodology behind zero waste provides tangible and achievable policies which help do just this, as well as increasing community ownership and collectiveness towards achieving a common goal. Zero waste policies also directly help to reduce costs for local municipalities, which can then be either transferred as savings for residents or used to fund other vital public services.

Whether you are a municipality official, waste professional, civil society actor, business owner or resident, you will find that zero waste is relevant for you. We hope that this toolkit provides you with the skills and knowledge to begin your journey towards zero waste.

For further information and guidance about how to design and implement a local zero waste strategy within your municipality, you can use [Zero Waste Europe's Masterplan](#). The Masterplan provides greater detail and insight into the specifics surrounding zero waste and how to adopt effective waste reduction and prevention policies.

Try it yourself

PART 10



Want to develop your experience and understanding on what steps are required to design a zero waste municipality plan at the local level?

Write a one page summary of what you believe would be the central components of a zero waste plan within your municipality. You can use the '10 Steps' as a guide and adapt it to your local context.



Send us your plans!

Send your plans to cities@zerowasteeurope.eu and the Zero Waste Europe's Cities team will be able to provide analysis and feedback on your ideas, helping you structure and formalise a zero waste plan with and for your municipality.

OPADKOV

SO1

MO9

Learn more

PART 11

 **snaga**
OBISKOVALEC

 **snaga**

OBISKOVALEC

Visit the websites of the authors to find out more information about zero waste and how to implement successful waste prevention & reduction policies at the local level.



Hnutí DUHA

Friends of the Earth Czech Republic



Ekologi Brez Meja

Ecologists Without Borders



Zero Waste Europe

#ZeroWasteCities

Zero Waste Cities

Authors

Pierre Condamine, Jack McQuibban, Joan Marc Simon, Jaka Kranjc, Ivo Kropacek, Romana Kacčíková.

Editors

Agnese Marcon, Rossella Recupero.

Design

Noiza



ZERO WASTE EUROPE



Co-funded by the
Erasmus+ Programme
of the European Union



Hnutí DUHA
Friends of the Earth Czech Republic