



Zero Waste Urban Parks is an Erasmus+ European partnership between four organizations aimed at enhancing the skills and competencies of urban park staff. The partnership focuses on driving behavioral change, raising awareness, and increasing efficiency in waste management practices to reduce waste production and promote sustainability in urban parks.

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REVISION: Zero Waste Europe - Manon Jourdan

ISBN 9789066252103, D/2025/0180/02

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Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

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Abbreviation index

- ACPP Asamblea de Cooperación por la Paz
- EU European Union

ISA - Instituto Superior de Agronomia (Superior Institute of Agronomy)

- LED (lights) Light-Emitting Diode
- NGO Non Governmental Organization
- WWF World Wide Fund
- NEB New European Bauhaus
- SDG Sustainable Development Goals
- **UN United Nations**
- **UNEP United Nation Environmental Programme**
- ZWUP Zero Waste Urban Parks

"The world has enough for everyone's need but not for everyone's greed"

Mahatma Gandhi



In many ways, waste is a universal problem as it can be found in any country and city. While different resources are applied by the EU to solve the problem of littering, including various technologies and different types of social engagement, Zero Waste Urban Parks (ZWUP) specifically addresses the behavior of green spaces users and managers, with the ultimate goal of connecting urban parks in Europe with a collective ambition of becoming waste-free.

For such a purpose, the results of experience exchanges between several European urban parks, located in Belgium, Portugal, Spain and Poland, were collected and translated as a set of good practices that facilitate urban parks to become ZWUP.

The Zero Waste Urban Park Dream



1.1 Who am I?

Hello! I'm the Zero Waste Urban Park Handbook and I am here to share the inspiring journey of a community dedicated to preventing waste and transforming urban green spaces. This community is composed of dedicated workers at urban parks and NGOs from European cities, and is driven by the shared vision to transform urban parks into sustainable, waste-free spaces of belonging.

Throughout our story, I will guide you through the innovative solutions this community has developed to reduce waste at every turn.

From designing their own composting systems to hosting zero-waste events and partnering with local businesses, they have reimagined park management with a focus on resource sufficiency, regeneration and well-being. These efforts contribute to a cleaner, happier and more enjoyable environment for every park visitor.

As we journey through these pages, you'll discover how this community is not just reducing waste but setting a new standard for how urban parks can thrive in harmony with nature and the growing demands of urban life.

Once this community had a dream...

The dream began with the seed idea that a Zero Waste Urban Park is a standard in every city. It promotes community ownership, care, and supports high biodiversity, recalling the idea of wilderness.

A Zero Waste Urban Park is a packaging-free hotspot, promoting active sustainability processes and an inclusive space. It works in close relation with all the community, including private companies and eco-focused entities, and has a positive impact on other parks.

Within the park one can find an ecovillage, as a shelter and model for climate change mitigation, delivering positive impacts, such as reducing the city's hot island effects or lowering noise pollution.

The team members of the Zero Waste Urban Park are motivated and proud to work in the Park, integrating volunteers and visitors. The team is involved in raising awareness, inspiring next generations with the following values: inclusivity, creative thinking, gratitude, responsibility and respect for the environment.

The Park has a positive impact on the well-being of all living creatures, promoting the highest respect for nature. Welcome, enjoy, and leave it better than you found it!



This is the story of a community turning their dream into reality, step by step, and now wishing to share it with you-inviting you, your community and your local park to come along on this journey.

Teamwork makes the dream work

The aim of the Handbook is to strengthen and spread zero-waste knowledge and skills among changemakers across European urban parks, and to empower them, by providing a set of best practices that can be implemented in green spaces, in order to improve waste management systems, with the ultimate goal of eliminating waste entirely.

This Handbook can be used as a guide to support the shift from waste management to resource management, in a broader circular system that considers not just the parks but also their nesting local communities. You can find zero-waste measures alongside associated costs, good impacts, possible problems, the co-creative process developed by this urban park community, plus some of the tools that were used to prepare the teams, to work the communication, or to build up the measures internally.



"Once we adopt the zero waste mindset, it becomes hard for us to imagine a different way of managing resources."

Kalle, 2022

1.3 How can be used?

1.2 Who wants to read me?

You definitely want to read my story if a Zero Waste Urban Park resonates as a dream you wish to be a part of. Especially if you are an urban park manager, a community member, or a local technician involved in decision-making for your city's green spaces, this is an opportunity you won't want to miss! Likewise if you are skeptical of zero-waste, this Handbook might positively surprise you. By getting familiar with practical experiences from those who are just beginning their zero-waste journey, you may achieve cost savings while enhancing your park and contributing to a positive local impact.

Reading me can be a very good start to tackling climate change, reducing waste, and supporting sustainable development, not only in parks but for many other structures in the city, like green spaces, picnic areas, skateparks, etc.

I do not have to be read in full nor in the presented order. Just take a walk through the park map and explore the zero waste best practices already implemented in some European parks, so you may take the inspiration with you. All the examples provided can be adapted and replicated within your own context and capabilities. "Chapter II – Zero Waste Best Practices" is a catalog of ideas to inspire any urban park management strategy.

Just keep in mind the adjusting of guidelines to your specific context, resources and team, even though most suggestions are adaptable for urban parks across Europe.

To maintain coherence, do not print this Handbook. Let's save trees, energy, and money. Go digital, explore it, and spread the word sharing the pdf and the video.





1.4 The Zero Waste Principles and Movement

"The most efficient way to manage waste is to reduce it."

- Zero Waste Definition -> Zero Waste International Alliance (2018)

Zero waste is the conservation of all resources by means of responsible production, consumption, reuse and recovery of products, packaging and materials without burning, and with no discharges to land, water or air that threaten the environment or human health.

See more about the definition of Zero Waste in the Zero Waste training handbook.

Zero Waste is a growing movement aimed at minimizing waste production by promoting sustainable practices around the concepts of refusing, reducing, reusing, recycling and redesigning systems to eliminate waste generation at the source.

Instead of viewing waste as a byproduct of modern life, Zero Waste advocates for a shift in mindset—where materials are considered valuable resources that should circulate within a closed-loop system, mimicking the efficiency of natural ecosystems. At its core, Zero Waste challenges the

linear consumption model ("take, make, and social goals, including climate dispose"), which leads to the depletion of natural resources and environmental degradation. Instead, it supports a circular economy, where products and materials are continuously repaired, reused, repurposed and ultimately recycled, with the goal of eliminating waste sent to landfills or incinerators.

The Zero Waste movement goes beyond recycling by preventing waste from being created in the first place. It encompasses broader environmental



of fair and resilient communities. At the local level, zero-waste measures encompass a broad range of actions, including but not limited to eliminating single-use packaging, designing products for longevity, promoting bio-waste separation and composting, while raising awareness through targeted communication activities.

action, natural resource conservation, universal well-being and the creation

Some numbers and figures

Why rethink the way we produce and consume?



100 kg = 1 newborn elephant

5 ton = 1 average elephant



200 tonnes = 1 Antarctic blue whale (biggest animal on the planet, reaching up to 30 m in length)

1000 tonnes = 5 whales

Worldwide

Every year, an estimated **11.2 billion tons** of solid waste are collected worldwide (= **56 000 000 whales!)** according to <u>UNEP.</u>

If concrete and consequent action in not undertaken, municipal solid waste generation is predicted to grow from **2.1 billion tonnes in 2023 to 3.8 billion tonnes by 2050** (UNEP).

Europe

Total waste
5 tonnes of waste are produced by the average European person each year.

• Only 38% of all the waste being produced in the EU is recycled.

Municipal waste

513 kg of municipal waste are produced per capita in Europe (eurostat, 2022). **Over 60% of household waste still goes to landfill in some EU countries**, according to the <u>European Commission</u>.

Many projections expect that if no new policies and concrete measures are implemented, **global plastic production will continue to increase, doubling the demand by 2050** and more than tripling by 2100, with an almost equivalent increase in CO₂ emissions.







There is a direct relation between poor waste management, just focused on recycling, waste generation and the demand for new materials. Therefore, it's urgent to break the consumerism cycle and enter in a <u>sufficiency-based</u> Circular Economy.

On average, each European citizen generates almost half a tonne of municipal waste, with total annual waste generation in the EU reaching 2.5 billion tonnes. To address this increasing issue, the EU defined <u>a waste hierarchy</u> that prioritizes waste prevention as the most effective method to conserve resources and reduce the environmental impact of waste.

However, according to EU reports, only 38% of waste is recycled in the EU and over 60% of household waste still ends up in landfills. This amounts to 5 tons of waste produced by the average European annually. According to the <u>Circularity Gap</u> Report 2023 by Circle Economy, the global circularity rate is now just 7.2%, marking a two-percentagepoint decline over the past five years.

This means that over 90% of materials are either wasted, lost, or remain unavailable for reuse for extended periods. The report also highlights that material extraction has been increasing every year, with projections indicating it will exceed 150 gigatons by 2059.



Zero Waste hierarchy:



Over the past six years alone, the global economy has extracted and consumed more resources than were used throughout the entire 20th century.

Despite the progress made by various circular economy initiatives and the pressing need to improve recycling systems, we are still far from curbing our excessive resource consumption and we will be unable to do so without prioritizing upstream waste reduction strategies to mitigate the relentless demand for virgin materials.

Although the EU Waste Framework Directive defines a hierarchy of

waste treatment methods, a different hierarchy is typically presented by the zero-waste movement. As indicated by the figures, the zero-waste hierarchy aims to create a waste-free system by design.

The goal is to reduce the need for resource extraction by limiting material use to what is truly essential for everyone's well-being.

This involves designing durable, reusable products and materials that last as long as possible, and ensuring that, once discarded, they are effectively reintegrated back into the economy.

To counter the escalating waste production, the growing material consumption and the resulting environmental degradation, we need coordinated and effective collective action. By focusing on reducing waste at the source, by re-thinking the ways we produce, consume and use materials and products, we can reverse these damaging trends.

Use less, use longer, use again and make clean:

The graphic below depicts four flows to achieve circular objectives: narrow, slow, regenerate and cycle. The four objectives are based on the work of Bocken et al. (2016)



Some related sources:

- OECD Plastic Pollution
- <u>Science Direct Global Projections of plastic use</u>
- Nature: Plastic futures and their CO2 emissions
- <u>Recycling Magazine</u>



1.5 Why Zero Waste Urban Parks?

"The best waste is the waste that never gets created in the first place."

Urban parks are vibrant spaces that attract thousands of visitors annually. People come to enjoy nature, relax, engage in physical activities, attend public events, or simply to spend quality time with friends and family. They represent an important bubble of joy and calm within urban environments.

Due to their diverse functions, these parks offer a unique opportunity to implement zero-waste initiatives that can significantly mitigate environmental impact. They are ideal spaces for citizens to engage in positive behavioral changes regarding their resource use and waste management, helping them rethink their consumption habits and how they approach waste.



1.6 Zero Waste Urban Parks and the European Agenda

Most of the organizational approaches to waste management have historically been inconsistent, relying on unsystematic or partial approaches.

The EU Green Deal was introduced to encourage more effective measures, also on waste management. When combined with prevention strategies such as zero-waste and circular economy plans, it makes possible not only to cut local waste management expenses, but also to promote social inclusion, local economy and cooperation networks.

Co-creation of this Handbook came from building a road from dream to practical and strategic measures, in connection with well-established guidelines, ensuring that the real world is found at the end of the road.

The zero-waste measures applied in urban parks are a result of the several European Guidelines aligned with wellbeing, happiness, active citizenship and cooperation, in order to boost a collective, progressive and consistent transition, relying on tools such as the New European Bauhaus (NEB), the UN Sustainable Development Goals and the work already done on Sustainable and Just Cities, Doughnut Economy and Zero Waste City Certification.

This approach yields diverse results that can be adapted and replicated in similar projects, inspiring future endeavors aligned with the objectives of Zero Waste Urban Parks.

According to the <u>NEB</u>, the neighborhoods targeted for transformation should function as "living labs" for innovation, with several initiatives emerging from bottom-up co-creation processes.



Zero Waste approaches and in particular Zero Waste Urban Parks strategies, will actively contribute to several <u>UN SDGs</u>:

- **Promote sustainable agriculture (SDG2)** namely through composting, soil improvement and sustainable food production.
- Ensure healthy lives and well being (SDG3) by minimizing the use of pollutants as pesticide for example, contributing to cleaner air and a safer environment, which positively impacts public health.
- Sustainable management of water (SDG6) by incorporating rainwater harvesting systems and water recycling for irrigation, reducing freshwater use.
- Sustainable and modern energy (SDG7) by installing solar lighting, wind turbines or other renewable energy solutions to power facilities, reducing reliance on fossil fuels and promoting clean, modern energy.
- Foster innovation (SDG9) by becoming hubs for testing reuse and repair practices, promoting a sharing economy, developing eco-friendly infrastructure solutions, inspiring sustainable design, and driving circular economy initiatives.
- Contribute to cities' inclusiveness, safety, resilience and sustainability (SDG11) by creating inclusive green spaces that are accessible to all and safe.

- **Promote sustainable consumption (SDG12)** by offering educational programs in parks about waste reduction, recycling and sustainable practices.
- **Contribute to combating climate change (SDG13)** by adopting practices that reduce the amount of residual waste generated and sent to harmful disposal practices such as landfill and incineration, thereby lowering greenhouse gas emissions such as methane and CO₂.
- Promote sustainable use of terrestrial ecosystems and forest management (SDG15) since preserving and restoring urban green spaces through sustainable resource use and waste management practices protects biodiversity and supports ecosystems, making parks suitable habitats for native flora and fauna.
- Revitalize global partnerships for sustainable development (SD17) since it bases its action on collaboration among municipalities, environmental organizations and local communities, promoting shared goals, actions and global coalitions for sustainability.





Best Practices in Urban Parks



In the process of making their dream come true, the Zero Waste Urban Parks community members created a roadmap that allows you to navigate through a Zero Waste Urban Park and get to know the measures that have already been implemented in their parks.

The following 20 best practices are based on real practices shared among the community members and the parks participating in the project. Be most welcome and get inspired:

Vrijbroekpark (Mechelen, Belgium), Park Grabiszyński (Wrocław, Poland), ISA/Tapada da Ajuda (Lisbon, Portugal), Parque del Alamillo (Sevilla, Spain), Parque de los Toruños(Cadiz, Spain).

One can make a difference with small steps and start a long journey of sustainable footprints for future generations.

Enjoy and leave the park a better place than you found!

Numbers communication

Description

- Many park visitors do not know how big the litter problem actually is. Tell them! Use numbers to trigger a shock effect, e.g.
 - how many kg/l of litter is collected per year;
 - how many staff members / volunteers work to keep the park clean;
 - how much does it cost to clean the park each year and what could be done with that money instead.
- Try to communicate in a positive way for an encouraging effect, e.g.
 - 90% of park visitors put their garbage in the bin, thank you this year we saved 5000 euros in cleaning, etc.
- Use other nudging techniques (learn more about green nudges).

Where Belgium, Vrijbroekpark

Built experience Since 2024

Experienced benefits

- By communicating numbers in an attractive way (infographics), we create awareness.
- By creating awareness, people engage in more park litter reduction.

80% of the park visitors throw their garbage in the bin.

You, too?



What went / might go wrong

The amount of litter might increase every year anyway, how are you going to communicate this (in an encouraging way)?

Low to high budget alternatives

Simple list of numbers yearly updated.

E List of numbers with an attractive layout, updated two times a year.

E Attractive infographic(s), designed by an external communication partner, updated 4 times a year.



TIP! Make sure that many people read the information by choosing the right communication channels, such as park entrance, other relevant park spots, online and social media. Page 19

20 volunteers each week collect litter in our park. **Thank you!**

Green mobility

Description

Easy and simple green mobility actions, that minimize waste production, can be implemented, such as:

- Using Solar-Powered Lighting in parking areas to minimize energy consumption.
- Using eco-friendly materials such as permeable or recycled pavement, which allows water absorption and reduces runoff.
- Display awareness signs to encourage zero-waste practices (strategic communication spot where people stop and eventually look around).
- Implement Electric Vehicle charging stations and dedicated bike parking spots.

ISA/Tapada da Ajuda Park has 2 EV charging points near the main building, as well as bike lanes that connect the different entrances of the Park and has 80 dedicated bike parking spots. The bike lanes and parking spots are the result of a partnership with the Municipality of Lisbon.

ISA/Tapada da Ajuda mobility strategy also includes restricting access by car to visitors and the academic community. In the scope of large events, a partnership with bike brands and the local public transportation company (CARRIS) was made, in order to ensure internal shuttle connections with established schedules.

The effective way to achieve a zero-car policy might require smaller intermediate steps (e.g., mobility habits; discounts in park services, events or activities), monitoring the associated results and setting up an attractive communication campaign.



Parking for bikes and electric vehicles charging station. © ISA/Tapada da Ajuda

Where Portugal, Tapada da Ajuda. University entrance; scattered park spots, close to main service buildings and facilities.

Built experience Bike lanes, bike parking and EV charging points, from 2023; New mobility strategy of the park is ongoing and with new progressive measures from 2024.

Experienced benefits

- Park carbon footprint is reduced
- Since the bike lane implementation, more people visit the park on bike or trekking.
- University students, professors and the main visitors of the park are encouraged to use sustainable mobility means and therefore actively contribute to better air quality in the park.
- The noise, danger and visual impact of cars is also reduced, promoting a more pleasant environment for visitors and workers.

What went / might go wrong

A car fee of $2 \in$ is applied on a weekly basis, and on weekends the fee rises up to 20 € per car. Workers and students have the option to pay an annual access card to enter by car. The fees are not always well received. As such, a clear associated communication campaign is relevant to give context to such a measure.

Low to high budget alternatives

• Use the parking area for Zero Waste communication and nudging techniques applied to green mobility.

E Adequate paths for tracking and bikes, as well as central and secure bike parking slots and EV charging stations.

EEE Implement a system to reward the visitors and workers that



No bins picnic area



Description

The no-bins picnic area is a designated section of the park featuring picnic tables without any available waste bins, to pilot the public reaction to such a measure.

This area is signposted with a clear explanation about the initiative, clarifying the aim of the measure and appealing to the collaboration and co-responsibility of all.

Visitors can empty the provided bags / baskets into sorted waste bins located at the park's exit. Afterward, park staff will return these to the picnic area, so they can be reused by other visitors.



TAPADA DA AJUDA UM CAMPUS PARA DESFRUTAR



Poster appealing to new behavior: "Don't just take memories, also take your waste with you". © Zero Waste Lab



Picnic area and picnic table with a group discussion on the no-bins measure © ISA/Tapada da Ajuda and Zero Waste Lab

Where Portugal, ISA/Tapada da Ajuda, Parque das Merendas (picnic area with wooden tables).

Built experience Pilot in preparation with the local Focus Group, expected to start in December 2024.

Experienced benefits

- The waste collection infrastructures are reduced and the park will have less litter.
- The number of bins in the whole park requiring maintenance is reduced, therefore reducing the number of waste collection routes.
- People experience a different social behavior being responsible for their own waste – eventually leading to better planning a picnic in advance, avoiding waste and raising awareness for less consumption.

What went / might go wrong

- Visitors leave the mobile container with their garbage outside of the picnic area, without emptying it at the park exit, scattering containers and making waste collection more difficult.
- If the communication is not very clear, people might misunderstand the expected behavior and leave waste behind.

Low to high budget alternatives

Eliminate 100% of the bins in the selected area + signposting "zero" waste area".

Add effective communication about the aim and the reasons for the initiative.

EEE Add environmental education events in the area to integrate behavioral change (minimizing waste production and raising self and coresponsibility).

TIP! This project considers the progressive removal of bins in various areas in the park. It is desirable to eventually include the whole park, hence the current good practice can be seen as an intermediate step towards such a purpose. However, as a final purpose, the total removal of bins would require the adoption of a long-term zero waste plan that will demand extra cleaning during the first stages, pre-communication campaign, and phased implementation. The key to avoid "What might go wrong" is effective with consistent communication and participative planning.



Community gardens and composting



Photo: Community Gardens and composting unit at ISA/Tapada da Ajuda. © ISA/Tapada da Ajuda

Description

The Community Gardens are part of a partnership between ISA/Tapada da Ajuda and the Municipality of Lisbon. It is an opportunity for Lisbon residents to enjoy and use the space in the park, where they can manage a farming plot and grow their vegetables and fruits. It comprises 37 vegetable gardens of 50 m2 each. Each user can keep their garden as long as they want, as long as they comply with the Community Garden Rules.

The selection of users is under the Municipality's responsibility, as is the management of the infrastructure (shelters, fences, and irrigation structures). The park supports the land and agricultural expertise. All selected users received training on biological agricultural practices, natural pest control, and composting.

According to the established Rules, all farming is done without chemicals, and therefore respecting seasonal rhythms, with as minimum irrigation as possible and an overall no-waste concept, namely through the use of composting systems and agro techniques such as soil coverage, natural compost and fertilizers.

The users pay an annual fee to use the plot (according to the social vulnerabilities) and sign an agreement to comply with the Rules.

Where Portugal, Tapada da Ajuda, in front of the secondary public school located inside the park.

Built experience Since 2023.

Experienced benefits

- Lisbon residents can grow their own vegetables.
- Opportunity for environmental education Lisbon residents can learn about agriculture and share this knowledge with the wider community.
- Increase of safety in the campus as vandalism episodes decreased with the increase of people working inside the park.

What went / might go wrong

- Gardeners not complying with the rules, e.g., growing the wrong vegetables / fruits according to the season, compromising agricultural efficiency / soil fertility.
- Since ISA is a public organism, the contract between the municipality and the gardener can be ended upon political changes.
- Gardeners might guit from their garden because it is far or due to the effort of walking in slope terrain.

Low to high budget alternatives

• Make available small plots of soil for an NGO or community group, without infrastructure construction, for farming production promoting some basis rules, such as using no chemicals, cultivating water resist plants, sharing seeds, materials, tools and composting.

E Add access to agricultural training, solar lamps, shelters and infrastructure including eco-toilets, rainfall reservoirs for irrigation. Promote sharing and exchange moments in organized fairs among farmers.

E Add regular monitoring of soil and growth and communicate them with the farms to share achievements on sustainability. Promote technical assistance for organic farming and composting to farmers and communities using the same structure.

ATTENTION! Make sure that the users comply with well defined rules in order to guarantee sustainable good practices and that gardens are not abandoned and comply with their original objective.



The park as a living lab

Description

Take the chance to integrate some zero-waste innovations in facilities at the park. Allow the public to use, experiment, and visit new real-life options is an efficient way to promote zerowaste in proximity to your community.

Living Lab House

A 4th element family lives in a house inside the park, where innovative technology avoids waste and promotes the efficient use of resources. Here 80% of the energy is produced and stored by photovoltaic panels; It has a toilet which separates urine from feces. The former flows to a reactor for phosphate production, which is used as fertilizer, and the latter is treated by a compact wastewater treatment plant. The house is equipped with water and energy meters for control of consumption. University students focus here on assessments and projects. It is also possible to visit the house in organized tours led by professors.

A Living Lab does not have to be connected to research or commercial projects. A Living Lab will always be an opportunity to influence the wider community to choose more sustainable options.



Compost toilets

There are two compost toilets in the English garden. These toilets use no energy, no water, no chemicals, are easy to maintain and have a beautiful design.

Revolutionary toilets that operate without water or electricity and require no sawdust or chemicals. Sun and wind are enough. Independent, reliable and economical public toilets with a modern and elegant design. First, solids and liquids are separated. Then, with a gentle breeze and the heat of the sun creating a continuous flow of air, the solids are dehydrated and the liquids evaporated.

A family household in the park - Living Lab. © ISA/Tapada da Ajuda, Portugal

Compost toilet at Vrijbroekpark © the province of Antwerp

Where

Living Lab House: Portugal, Tapada da Ajuda, integrates the Superior Institute of Agronomy (ISA) Campus. Compost toilet: Belgium, Vrijbroekpark, Mechelen

Built experience

Living Lab House: Since 2022 **Compost toilet::** Vrijbroekpark since 2020

Experienced benefits

- The facilities can be visited by park visitors, community groups or students through guided tours. Having contact with innovation in action and applied to daily life challenges makes it much more attractive.
- Living Lab House:
 - Water and energy savings.
 - Monitoring water and energy consumption allows family consumption adjustments.
 - Relevant real database for research projects and possible replications to apply the innovative sustainable technologies on other facilities in the park or even in the wider community.
 - Prevention of sewage production.
- Compost toilet: reduce water consumption, conserving thousands of liters annually; These toilets function without electricity, utilizing natural processes for waste management, which is particularly beneficial in off-grid locations. By eliminating the need for chemicals and preventing effluent discharge, these toilets minimize environmental impact and promote sustainability.
- Their self-contained design allows installation in diverse locations without the need for sewer connections, making them ideal for remote or environmentally sensitive areas.

What went / might go wrong

Living Lab House:

- Putting into practice a Living Lab House demands a medium investment and some practical adaptations at home, which might be challenging for some families or parks.
- Technical issues may occur along the project implementation, such as photovoltaic monitoring failures, construction barriers, etc.
- No scalability of the project as a whole, however it might be interesting to consider replication of some components.

Compost toilet:

- Acceptance by the general park visitors; users need to adapt to a different design and functionality.
- If not well-maintained, the toilet may attract flies or other pests. Ensuring proper seals and regular emptying can help minimize this risk.
- Extreme weather conditions, like very cold temperatures, can slow the composting process, requiring additional adjustments such as insulation or compost heaters.

Low to high budget alternatives

• Implement eco-toilets or add solar panels to save energy costs on a facility building.

K Create a simple version of a Living Lab House adapted to a facility building, with the integration of water and energy meters for controlling and adjusting consumption.

EEE Add waste separation device for liquid and solid fractions in toilets and integrate a reactor for phosphate production, which can be used as soil fertilizer.

Change management implementation

Description

The availability to change or adapt the management strategy is needed to continuously bring zero waste management awareness to your colleagues, since teams often comprise a wide variety of profiles and engagement, from totally aligned with zero waste to skeptical or resistant e.g., some may believe that removing bins leads to lost control over litter.

Change management includes providing your team with Zero Waste training and strategies to implement it (e.g., on nudging, i.e., behavioral change techniques). It also requires regular internal communication, open discussions to hear all team perspectives, and encouraging zero-waste advocates to support and motivate others. This approach will help to build a cohesive and committed team, with everyone working toward zero-waste goals.

Where Belgium, Vrijbroekpark

Built experience One year (2023-2024)

Experienced benefits

- Strengthening the zero waste knowledge of a team generated better zero waste results.
- Rational arguments including expected reduction of costs and working hours, have helped park managers to take a step closer to more bin-free zones. They dreamt of extra time and money savings.



Zero waste park meeting with colleagues from different departements © the province of Antwerp

What went / might go wrong

- The journey towards zero waste is a hilly road. Do not underestimate change management as a team guide. Take the change very seriously.
- There is never too much internal communication!
- Do not expect that everybody changes to 'zero waste' in their daily behavior. Be grateful with small steps and always check your own awareness.
- E.g., the ineffective creation of bin-free zones in an event led to resistance and complaints among the workers because the used containers instead of the bins were too heavy to transport.

Low to high budget alternatives

Calculate costs and working hours that are spent for waste management and communicate them once a year to the staff.

Corganize internal communication meetings related to zero-waste on a regular basis.

E Provide training (e.g. on nudging), which might positively impact management issues.

TIP! Consider dog waste bins remaining in the bin-free zones to avoid workers stepping on it while mowing.



Zero waste island



Description

Set up a Zero Waste Island at park events to promote waste-free practices in a fun and interactive way. Here you encourage visitors to participate in wastesorting games, compost demos, and other sustainable activities while giving them concrete information about zero-waste practices.

Focus on engaging young visitors with interactive, playful activities while informing adults about the park's efforts to reduce waste using information panels, guestionnaires and dialog. Communicate your motivation and enthusiasm to activate the participants. Will you join us for zero waste? How nice would a park be without trash cans and garbage?

The island can be a brightly decorated tent (with a focus on sustainability in the furnishing), or perhaps a wooden caravan made of recycled material. Or just an area with a clear signposting (e.g. SDG icons). The island can be a permanent feature at your events or partners' events if agreed upon. Set up your Zero Waste Island in the middle of the event terrain! It is not intended to be a stand-alone activity or event.

Use recycled materials for the setup. Restore and pimp some of the old game installations, starting from materials that you already have and that are still in good condition. If you develop new ones, try to manufacture them as sustainably as possible, so that they can serve again in following activities.

What you can add to the zero waste island to make it more interactive: containers to sort the waste; a questionnaire with two vases (two answers) asking people to throw a cork of wine bottle or some other item into one of the vases; compost-demo; service to rent a reusable cup/plate; free tap water;...



Zero Waste Island during the Festival of the Roses © the province of Antwerp

Game carrousel, tested and approved:

1. Spin a large wooden wheel: the pointer ends up on a piece of waste (different types of materials, see next activity).

2. 'Fishing ducks': fishing for waste in the container with water (participant is fishing for waste that is depicted on the wheel).

3. Throw the piece of waste into the right waste bin (sort correctly), you can also enter into a dialogue about this.

4. 'Electro' matching game: match different types of waste material (= litter found in the park) with the decomposition times of it (when right match led light will burn and bell will ring).

5. 'Squirrel petanque' game with a simple instruction sheet. You can make the game with painted pine cones.

6. Throw the dice: large dice, on each side a picture of a healthy reward for participating in the activities: organic fruit (apple, pear) or raisins,... make sure the snack comes from a short chain, is bought packaging-free, so you nudge to choose a healthy, sustainable snack.

Each activity was announced and explained using chalkboards with a playful presentation of the activities and simple game instructions (short, unambiguous sentences, understandable to as wide an audience as possible).

Where Belgium, Vrijbroekpark

Built experience One year (2023-2024)

Experienced benefits

- Through the playful and interactive approach with the provided game installations and associated instructions, we were able to arouse the interest of young participants and their supervisors in topics such as waste, waste sorting and zero waste.
- By putting these themes in the spotlight in a playful way, more questions automatically arose about awareness of certain things such as the decomposition time of fly-tipping and packaging and all kinds of materials.
- The zero waste island is only one part of a larger process in which we are trying to raise broad awareness about waste, waste sorting, recycling, finite resources and sustainability in general.



Animated recycle bins during the Festival of the Roses © the province of Antwerp



Zero Waste Island during the Outdoor Play Day © the province of Antwerp

What went / might go wrong

- Ensuring that interest is piqued and that we invite visitors to reflect, while avoiding being preachy.
- Defining the scope of the activity and making choices to avoid an overload of activities and information. We need to find a balance and avoid simulating a recycling park with our waste-related activities, as this would be counterproductive.
- Positively encouraging people to reflect and take action. We aim to provide a realistic picture of the issue and raise a sense of urgency, but we don't want to send participants home with a bleak outlook. By sharing knowledge and supporting each other, we can achieve more.

Low to High Budget Alternatives

• Develop activities using existing materials. Purchase healthy rewards/thankyous for participants, such as organic fruit from local sources.

E Consider additional investments to enhance the experience.

E Upgrade the zero waste tent from a canvas tent to a wooden zero waste caravan made from recycled materials. Equip the caravan with permanent information panels, installations, and storage space for materials to reduce the risk of loss.

Green waste reduction





Composting site in the Vrijbroekpark with different fractions © the province of Antwerp

Description

Simple management adjustments can significantly impact green waste reduction and compost needs. Local solutions that can eliminate the need of disposing green waste entirely, have included:

- Adjusting lawn mowing practices by using a mulching mower and reducing mowing frequency to decrease grass waste.
- Building a branch hedge for trimmings.
- Chopping pruning waste to use as pathway material, border cover, or compost.
- Repurposing root wood as animal shelters in restricted areas.
- Using logs or wood blocks as play elements.
- Not collecting the leaves that were left off the trees.
- Setting up a compost site or pile. Setting up a good compost does require some knowledge, and it needs to be adapted to climate, available resources, etc. For example, organic materials need to be in the right proportion, or some materials cannot be composted (problematic weeds), among others.

Where Belgium, Vrijbroekpark

Built experience 10 years

Experienced benefits

- Less green waste to dispose of (the biggest benefit), which corresponds to a significant financial saving.
- Less need for transportation, energy, and fuel.
- No need to buy compost. When the compost is done in the right way, parks have a high-quality product available to use and if possible to share with the community.

What went / might go wrong

- Staff specialized effort is required. It is recommended to provide training and explain all the benefits of reusing cut wood and composting.
- Customized solutions require some thinking and creativity.
- Doing proper compost requires good agreement and discipline.
- Always have in mind the climate conditions and risks (such as fire risk) associated with each geographical area.

Low to high budget alternatives

• Prevent too much green waste through very simple measures, such as leaving tree leaves on the ground or creating a branch wall for your pruning waste.

E Mulch lawns whenever possible; process pruning waste into mulch or wood chips; set up a simple compost pile to experiment and learn.

EXEC Establish a compost site with fractions and invest in proper training for staff.



Branch hedge © the province of Antwerp

Contracts with external event organizers

Are there organizations or companies that organize events in your park? Prepare and sign a contract for each event or create park guidelines for zero waste events. If the contract is already in place, make sure to include your zero-waste measures in it! If presented in a positive and cooperative way, measures will be more welcomed and effective.

Description

- Within your organization, agree on what measures are obligatory for each event organizer who uses the facilities of the park. Describe them clearly, and give additional explanation during the signing of the contract.
- You don't want (or you cannot) obligate the event organizers to follow the measures, but you can make a suggestive checklist and ask them to implement as many as possible of the suggested measures.
- In a later phase, you can announce that the event organizers that do not agree with specific measures, cannot use your park for their event.
- Give an extra promotion for a zero-waste event (nudging) and additional support to the organizers. Show them that if they do more effort, you do more effort as well!

Implementing zero-waste measures in park events can be practical and impactful! Transversal and very complex strategies can be developed to make a huge positive impact. But here are some simple strategies for the beginners:

- Prefer digital programs and ticketing;
- Encourage waste sorting;
- Promote public transport and cycling;
- Provide tap water stations and reusable cups;
- Use reusable serveware and materials;
- Promote zero-waste food and local suppliers;
- Reusable decoration;
- Engage attendees in zero-waste behavior.



Left: Reusable cups at a cricket competition in Vrijbroekpark © Kairali Right: During the Festival of the Roses 2023, we obliged all catering companies to use only reusable packaging, and it worked! As a result of the festival with more than 2000 visitors, there were only 20 liters of unsorted garbage! © the Province of Antwerp

Where Belgium, Vrijbroekpark

Built experience 2 years (since 2022)

Experienced benefits

- External event organizers are obligated to follow the rules.
- There is less garbage and less cleaning after the event.
- Each event functions as a representation of your park, even when you are not organizing it yourself. When you use the opportunity to introduce zero-waste measures during events, your message reaches many visitors and stakeholders.
- An event is a short-term project, which makes it easy to start with. It's also a great opportunity to test new ideas.

What went / might go wrong

- Not implementing the measures during your events. In this case, you cannot ask external organizers to implement them either. Be the example!
- External organizers not following your rules/suggestions. Maybe you can motivate them financially?

Low to high budget alternatives

€ Bring the organizer in contact with a local zero-waste NGO or organize zero-waste training for your external event promoters.

E Announce a contest for a zero-waste event. The winner doesn't need to pay the fee (or the cost is reduced) for using your facilities.

E Reduce the renting price of the event terrain or even give financial support for the event organizers who follow your zero-waste measures.



Zero-waste catering at the winter event in the Vrijbroekpark © the province of Antwerp

TIP! More inspiration: (EN) Sustainable event checklist (EN) My Zero Waste Event

Environmental Education

Description

Local schools, social enterprises and children are very effective targets. With simple activities, you can easily raise awareness of waste and litter.

As a park, you can offer outdoor education to children so they can discover nature, stimulate their imagination and develop new talents. The park becomes a green playground for many children between 5 and 12 years old who feel at home in nature, see the wonder, and whose imagination knows no limits.

Ask schools or other groups not to bring any packaging when they come to the park. If they bring lunch, it has to be waste-free, and they have to take all their garbage back to school or home. During your activities, explain why you ask them to do it and give broader context about litter issues in the park.

The Vrijbroekpark organizes guided educational walks for schools during spring and fall. 10.000 children are reached every year. To engage families, we collaborate with a small local company that organizes creative nature workshops for children during the weekend and during our events.

Park ranger giving a guided tour for a group of children © the Province of Antwerp

When designing an activity for children 5-12 years old, we focus on:

- Children should be in direct contact with or have to be able to see the animals and plants that play the main role in our storytelling.
- The hands-on activities encourage the children to roll up their sleeves. We include a lot of active games to alternate listening to a story or following a quided tour.
- Ask questions and make them think holistically. What impact can waste have on the flora and fauna of the park? Of the whole planet? What can we do about it?

Where Belgium, Vrijbroekpark

Built experience 25 years (1999-2024)

Experienced benefits

- Children and young people who play, experience, and discover nature are found to behave more environmentally conscious later on as adults, the so-called meaningful life experience. Good habits start young!
- Children talk at home about their experiences and bring their families to the park to show what they learned, raising awareness at home.
- Children with learning or concentration difficulties often benefit from active, non-formal education. "Difficult" pupils have been shown to settle down more in a natural learning environment.

What went / might go wrong

Not preparing well the activity might generate too much of a novelty effect for the child, increasing the likelihood of a negative nature experience.

Low to high budget alternatives

Cuided activities by volunteers.

€€ Guided activities by volunteers and paid employees - You can include a game about waste within the proposed activities package. Ensure your guides know about litter problems and can talk with the children about it.

€€€ Guided activities by paid employees or companies.

A guided tour for a group of children © the Province of Antwerp

Natural circular infrastructures

Dry branches and boughs from trees used to create temporary fences in Grabiszyński Park © ZZM Wroclaw

Description

One of the actions needed to ensure safety in the park is the removal of dry branches and boughs from trees growing near alleys. The wood obtained in this way is used to create temporary fences to protect young shrub plantings and restrict pedestrian traffic in places not intended for it.

Where Poland, Park Grabiszyński

Built experience Since october 2023

Experienced benefits

- The natural form of the used material fits into the wild character of the park, becoming a complementary element of it.
- The lack of impregnation allows the used biomass to return to the ecosystem further in time.
- Positive reception among park visitors.
- Protection of young plantings and park undergrowth from trampling.

What went / might go wrong

- Aesthetics are not standard, so they may not fit the formal design.
- Difficulty on fencing planning as the amount of material that can be used depends on the amount of deadwood in the crowns of trees.

Low to high budget alternatives

Eleaving branches to decompose naturally instead of creating fences. **EXE** Application of chipped harvested wood as pathway dumping; chipping and

composting.

E Organise a workshop for park visitors, and work together with them to build natural fences.

Passive communication (posters, signposting)

Description

Grabiszynski Park uses message boards with short information, to raise awareness on natural values and zero waste management. Using simple and creative messages such as "There is life in this (dead) tree!" or, specifically regarding litter, "There are many mysterious footprints in the park, do not leave more", or "Do not feed me, if I am full", presented through sticks on bins.

The Park also presents boards with educational information about the habitats, animals living in and bound to dead wood.

Where Poland, Park Grabiszyński

Built experience Since 2021

Experienced benefits

- Positive reception among park visitors, connecting more easily with natural dynamics or park management needs.
- Short and clear info makes people better understand why something is being done.
- Short, emotional and fun messages can be more effective in reaching people's minds and hearts.

© ZZM Wroclaw

What went / might go wrong

- Some people may prefer parks without boards and simply enjoy natural spaces.
- People may ignore passive communication.

Low to high budget alternatives

• Use simple DIY materials and resources to build info boards. The park may even invite community groups to participate in the production.

K Medium investment is needed to produce posters and boards with resistant materials and attractive design.

E Go for a full communication campaign produced by professionals.

Board in Grabiszyński Park with funny message: "There are many mysterious footprints in the park, do not leave more"

Wild flower meadow

Description

Beautiful wildflower meadows can be achieved by a simple method of reducing the frequency of mowing. Less mowing is very beneficial in several areas:

- It increases the biodiversity of city lawns.
- Once you have a mowing plan for phased mowing, you will save working hours that you can invest in other projects.
- It requires less usage of equipment saving energy and fossil fuels that are associated with pollution.
- It prevents green waste generation.
- It promotes the establishment of wildflower meadows with autochthonous plant species.

Grabiszynski Park has several areas with different mowing numbers: from 1 (the most natural, least maintenance) to 5 (the most representational, intense maintenance: around old cemeteries, like The Cemetery of Italian Soldiers), and also in an area that requires no mowing at all, located in the oldest part of the park.

Where Poland, Park Grabiszyński

Built experience Since 2019

Experienced benefits

- Biodiversity increase.
- Carbon and ecological footprint reduction due to mowing reduction.
- Positive reception among park visitors after implementing passive communication and education through social media and cooperation with Grabiszynski Park Council.
- Differentiated areas serve many different purposes and anyone can find something for themselves.

What went / might go wrong

- Some citizens don't like the stop-mowing idea, as they think that stopmowing is just about saving money; and that mowing areas look messy and neglected.
- If we are not careful enough expansive and invasive species might grow (like Asian Reynoutria with which we have a problem in one place).

Low to high budget alternatives

Mowing reduction means less money spent on mowing operations and infrastructure.

K You can prepare the ground in the first year, and use meadow seed mix to have more flowers a bit faster.

EEE Let the gardeners learn about natural flower meadows and phased mowing techniques by inviting an external organization/teacher.

ve mowing and flower meadows examples form Wroclaw (Poland) © ZZM Wroclaw

Wood benches and eco art

eft: Wooden playground Right: Wooden bench based on natural material form the Grabiszyński Park © ZZM Wroclaw_

Description

In 2023, a project was launched to create eco-benches from sustainably harvested wood. These benches were initially introduced in Wroclaw's Millennium Park during the WROŚnij event and have since been placed throughout various wooded areas across the city.

Since then, additional initiatives promoting the reuse of natural materials and zero-waste practices have been implemented in the park, serving as replicable best practices that other urban park communities can easily adopt.

- Incorporate reused natural elements: Use repurposed natural materials to create elements for the park's natural play area. Children love climbing, sitting on tree trunks and building their own shelters, which creates a rich, multisensory experience enjoyable for both kids and adults. Try setting up a simple circle of tree trunks, creating leaf carpets, or arranging piles of pinecones. These can serve as shaded seating areas, play spaces and exploration zones.
- **Promote a sharing economy:** Set up a shared box where visitors can leave or take books, toys and board games. This small addition fosters a sharing economy within the park, making it a community hub for shared resources.
- Promote upcycling and resources transparency: Design a unique burn-in stamp for park-made items crafted from reclaimed wood. This stamp can serve as a visible reminder to visitors of the park's commitment to sustainability and resourcefulness.

Where Poland, Park Grabiszyński

Built experience Since 2023

Experienced benefits

- Positive reception among park visitors.
- Cheap alternative for usual benches and playful elements located in more natural areas.
- With time the wood decomposes and organic matter goes back to the environment.

What went / might go wrong

- Some people might not be happy with benches without backrests
- Wood benches can deteriorate faster than non natural ones
- In case of play elements construction, mind that the local policy about playground safety must be checked

Low to high budget alternatives

• Use biowaste material to create, internally, new useful infrastructure; **E** Involve people of the neighborhood to design the structures, involve

children in designing natural play elements;

E Combine art and nature, by designing artistic furniture for the park with the park wood. Maybe inviting local artists it's an opportunity to build high quality and artistic remarkable pieces.

Extra source: Exploration of Natural Playgrounds in Urban Parks: Promoting Children's Health

Biocenotic zones (zero human interference)

Description

Biocenotic zones are a new, informal term that is understood to mean small zones, whole sections of parks or other green spaces set aside to protect biodiversity and wildlife. Such zones can be established in historic green spaces, parks, green spaces accompanying traffic routes, wastelands or as part of the development of biologically active areas of housing estates. These are areas set aside from use, e.g. certain fragments in parks, limiting free penetration, supporting biodiversity, i.e. facilitating the functioning, migration, feeding, breeding or resting of fauna and/or protecting flora in the urban space. These places are excellent locations to create quiet zones and litter bin-free zones.

Great examples of that zone you can find some parts of Grabiszyński Park in Wroclaw, with dense vegetation, are not accessible for humans and play a role as a reserve for animals, insects and other forms of life. Sometimes those zones are fenced with wood elements but it is not a rule. The size of those spaces are different, from very small, with few trees and plants underneath them to a significant part of the park. Ways of marking those zones are described in the Universal standards on maintaining greenery, being that a sixth part of this publication was created by the Wroclaw and Krakow Municipal Greenery Authorities, with the help of Sendzimir Foundation, in a co-creation process.

Biocenotic zone in Grabiszyński Park © ZZM Wroclaw

Where Poland, Park Grabiszyński

Built experience Since 2018

Experienced benefits

- Landscape diversion in the park increases.
- Biodiversity is enriched.
- Animals get more refugees.
- The place gets higher humidity and water storage due to lesser evaporation.

What went / might go wrong

- Biocenotic zones can become places with litter.
- People can trespass these areas and disturb animals or destroy plants.

Low to high budget alternatives

€ No need to invest money to create this areas. **E** Communication panels next to the zone to inform visitors. Page 38

IMPORTANT TIP!

Bin free zone and silent zone are recommended in these areas.

Sustainable operations area

Training on machinery maintenance and operational efficiency at Los Toruños Park. © Los Toruños Park. Cadiz

Description

Machinery and equipment maintenance plays a crucial role in enhancing operational efficiency and promoting sustainable practices. One of the primary strategies in this area involves routine upkeep of machinery and workspaces to ensure they function at peak performance. Through regular maintenance, parks can ensure that their machinery and equipment has a longer lifespan which in turn lowers the need to frequently replace parts and therefore minimizes environmental impact.

Furthermore, specialized training programs are provided for workers, focusing on proper machinery maintenance and repair techniques. This type of training allows employees to address minor issues quickly preventing costly breakdowns. As a result, the park benefits from a more efficient workflow and fewer interruptions in production.

Another key initiative is the gradual transition to energy-efficient machinery. By replacing outdated equipment with electric or hybrid models that consume less power, the park can achieve significant reductions in energy usage and operational costs. In addition, efforts are made to reuse components from unused machinery. Instead of discarding old equipment, useful parts are salvaged and stored for future use. This approach reduces waste and curbs the demand for new materials, aligning with circular economy principles.

Sourcing machinery and tools from local, sustainable suppliers is another strategic focus. Prioritizing suppliers who offer durable and high-guality products helps decrease waste generation over time. By opting for locally sourced equipment, the company also supports local businesses and reduces the carbon footprint associated with long-distance shipping. Lastly, the adoption of advanced technology solutions plays a vital role in optimizing resource use. Automation and precision technologies are integrated into various processes, allowing for more accurate measurements, less material waste, and increased overall efficiency.

Where PM Toruños and Algaida

Built experience Since 2024

Experienced benefits

- Machinery wear and waste generation reduction.
- Carbon footprint reduction.
- Long-term cost reduction.
- Workers' occupational health improvement.

What went / might go wrong

- Lack of sustainable products on the market that meet the requirements.
- High costs in replacing machinery.
- Lack of ongoing worker training and failure to establish more efficient protocols/processes.
- Workers not adapting to new work habits.

Low to high budget alternatives

Inventory control using tags with acquisition/repair dates. Working with suppliers who offer products with less packaging or use recyclable materials.

Efficient planning through weekly work meetings to identify new opportunities and practices.

E Invest in high-efficiency equipment and energy management systems. Although this may require a large investment, it saves energy and reduces emissions. Implement automation technologies where possible.

Waste-free pet zone

Description

The waste-free pet zone is designed for both relaxation and interaction with nature and is equipped with features that promote sustainability and the importance of shared responsibility in conserving our natural resources. Several strategies are promoted:

- Use of Recycled Materials: The fencing, play structures, and furniture are constructed using recycled or reused materials, reducing the demand for new resources.
- **Solar-Powered Lighting:** The lighting is provided by solar-powered luminaires, which reduce the area's electricity consumption and carbon footprint.
- Water Conservation: Water fountains for pets are equipped with push-button flow limiters to minimize water waste, promoting responsible water use.
- **Recycling Containers for Clubs:** Agility clubs and other organizations that frequently use the space are provided with reusable waste containers, aligning their operations with the zerowaste philosophy.
- **Composting Pet Waste:** Users are encouraged to use shovels, provided at a collection station, for scooping pet waste. This waste is then composted onsite, eliminating the need for plastic bags and reducing landfill contributions.
- Educational Programs: Regular workshops, talks, and activities are held to educate pet owners on sustainability practices. These include modules integrated into agility club courses that cover topics like reducing pets' carbon footprints, environmentally friendly pet care, and the responsible use of resources at home.

Pet zone at Alamillo Park. © Alamillo Park, Seville

Where Parque Metropolitano Marisma de los Toruños y Pinar de la Algaida

Built experience Since 2024

Experienced benefits

- Lower Carbon Emissions: through the use of solar power.
- Promotion of Zero-Waste Practices: through hands-on experiences and educational activities, users are encouraged to extend the zero-waste philosophy into their daily life routines.

What went / might go wrong

- Resistance to Change: Encouraging the transition from plastic bags to composting practices could be difficult if this convenience is hard to overcome.
- Maintenance Costs: The Solar-powered lights may require more frequent battery replacements than initially expected, leading to higher operational costs over time.
- Lack of Engagement from Key Stakeholders, the primary organizations that utilize the space.

Low to high budget alternatives

Instead of purchasing new equipment, reuse existing park materials, such as wood or metal to make benches, agility courses, and other necessary features. If budget constraints limit the installation or maintenance of solar lights, the pet zone's operating hours could be restricted to daylight, reducing the need for artificial lighting.

E Invest in durable, eco-friendly furniture sourced from nearby sustainable suppliers. This not only supports local businesses but ensures longer-lasting, high-quality equipment for the pet zone. Hold regular work meetings with staff and volunteers to brainstorm on costeffective initiatives for continuous improvement.

EEE Install solar lights with long-lasting batteries and higher efficiency, reducing long-term maintenance costs and providing consistent lighting for the zone. Set up a specific composting system designed to handle pet waste efficiently, while producing compost that can be used for park maintenance or community gardens.

Sports facilities for clubs

Description

The sports facilities located in Parque del Alamillo were established to provide a dedicated space for the San Jerónimo Rowing Club and the Rowing Federation. These facilities serve the athletes by providing a space for their administrative tasks as well as storing and repairing all equipment, including storage rooms, offices, restrooms, showers, and open spaces.

- These facilities were constructed using **discarded shipping containers** from maritime transport companies that could no longer be used due to wear and tear.
- All electricity comes from solar panels that have lost at least 30% of their energy-generating capacity, which, by law, means they must be discarded. Instead, more panels were installed to generate the necessary electricity.
- The showers are equipped with flow-limiting push buttons to reduce water consumption.
- Workshops, talks, and activities are regularly held to promote good practices, such as keeping the river clean and engaging in low-waste activities.

Where Parque del Alamillo, Sevilla, Spain

Built experience Since may 2022

Rowing Club in Parque del Alamillo © ACPP

Experienced benefits

- The construction minimizes waste by reusing materials, cutting costs, and reducing waste.
- CO₂ emissions drop with renewable energy and avoiding new material production.
- Repurposing solar panels reduces e-waste and manufacturing emissions while preventing soil and water pollution.
- Discarded shipping containers are reused, and renewable energy further lowers the carbon footprint.

What went / might go wrong

- The facilities might not fully meet rowing associations' needs.
- A shortage of skilled workers could affect container conversion.
- Solar panels may require more frequent, costly replacements.
- Improper facility use could cause excessive wear and deterioration.

Low to high budget alternatives

• The use of discarded materials, such as shipping containers and solar panels, reduces the need for new purchases.

K Energy consumption is covered by the use of on-site solar panels.

E The transportation of containers to the installation site is guite expensive, as well as obtaining legal certification to classify the container as a "habitable" space.

Tap water promotion

Description

Alamillo Park is home to some of Seville's most popular races, attracting up to 6,000 runners. The park has worked continuously to eliminate the use of plastic water bottles during these events by providing tap water and setting up additional fountains along the race routes.

Given the combination of large crowds and Seville's high temperatures, runners often resort to single-use plastic bottles to stay cool, leading to significant waste. To combat this, several measures were taken:

- Temporary water stations are set up and dismantled according to each race's schedule and are strategically placed at the finish line.
- Efficient water sourcing is settled from existing multiple taps throughout the park to reduce congestion and minimize wait times.
- Refillable options are available, to refill water cups during the race.

Where Parque del Alamillo, Sevilla, Spain

Built experience Since may 2022

Experienced benefits

- Organizers save on costs by avoiding the purchase of bottled water.
- Reducing the amount of single-use waste encourages conscious water use.
- It provides both economic and time-saving benefits for race organizers.
- Soil pollution from discarded plastic bottles is minimized.

Tap water promotion during a race in the park. © Alamillo Park

What went / might go wrong

- Bottled water brand sponsors might discourage water fountain use.
- There may be a lack of personnel available to install the water stations.
- Runners may neglect or misuse water stations, leading to quick deterioration.
- Poor communication about available water stations may cause confusion or underuse.

Low to high budget alternatives

• The transportation and assembly of water stations are managed by park staff. A minimal budget is needed to set up these stations for even a large-scale race.

Certification may be required to approve these "fountains" for public use. You can invest in custom fabrication of water stations to meet specific race requirements. Page 43

urage water fountain use. e to install the water stations. fons, leading to quick deterioration er stations may cause confusion or

Repair, reuse and recycle zone: children's toys

Toy Recycling project © Alamillo Park

Description

By implementing creative recycling initiatives, parks can become spaces that not only provide environmental benefits but also strengthen social ties, giving even support to the most vulnerable members of our communities, e.g. children.

With the help of **15 volunteers**, the **"Friends of the Park"** program has become a vital community resource in Alamillo park, Sevilla. Last year alone, over **16,000** toys were distributed to families from disadvantaged backgrounds, providing much-needed support while promoting sustainable practices.

The volunteers play a crucial role in managing the collection throughout the year, collecting donations from families and individuals across Seville, storing them at park warehouses, cleaning and categorizing items by age group. Toy Bags are created including at least one board game, one book, and other ageappropriate toys. Volunteers organize a large-scale toy distribution during Christmas, ensuring they reach children from disadvantaged families. Unusable toys are dismantled and materials like plastic, metal, and electronics are sorted for recycling.

Where Spain, Alamillo Park

Built experience Since 1995

Experienced benefits

- By collecting and redistributing toys that would otherwise be discarded, the program has significantly reduced the number of toys entering landfills. This helps mitigate the environmental impact of single-use plastic toys, reducing waste generation and promoting a culture of reuse.
- Support for disadvantaged families.
- Community engagement and volunteerism to collect, clean, sort, and distribute toys, fosters a spirit of collaboration and shared purpose.
- Families participating in the donation process become more aware of sustainable practices, while children learn about the benefits of reusing toys, which helps foster eco-friendly habits from an early age.

What went / might go wrong

- A lack of volunteers could slow down operations.
- Distributing thousands of toys—especially ensuring that the right toy bags reach the right families—could present challenges.
- It could become difficult to manage the separation and recycling of parts if the volume of broken toys increases.

Low to high budget alternatives

Rely on volunteers for managing the collection of toys; use park spaces like warehouses to lower infrastructure costs; partner with local businesses for supplies to further reduce expenses (cleaning supplies, tools for repairs, etc).

W Promoting through word-of-mouth, community boards, and social media keeps outreach affordable. Larger, better-equipped warehouses could improve toy handling and processing.

E Hiring part-time or seasonal staff for logistics, repairs, and coordination could ease volunteer workload and improve efficiency. Expanding with workshops and events on sustainability and recycling could attract more participants, requiring funding for materials, speakers, and venues.

Zero Waste Journey

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Urban Park

3.1 What is the Zero Waste **Journey?**

If you've explored the Zero Waste Urban Parks roadmap in the previous chapter, you likely discovered many inspiring ideas and best practices you'd love to see implemented.

However, applying them all is not always feasible. In some cases, even implementing just a few can be challenging. But don't get discouraged, the zero-waste path is a journey to take step by step, consistently at one's own pace. Each park has its own Zero Waste Journey, and therefore its own part of the shared responsibility in nurturing positive impact for future generations and sustainable communities.

The Zero Waste Journey is a list of opportunities that each park can design according to its context, resources, challenges and motivations.

A clear framework of mandatory and optional criteria is presented to help you and your team begin this journey.

The mandatory criteria represent the essential actions needed to initiate a zerowaste transition and set a transversal baseline, while the optional criteria allow for additional enhancements, which should be added over time and according to motivation.

Always keep in mind the relevance of clearly identifying and describing the zerowaste actions and impacts in order to enhance scaling up, sharing and celebration.

3.2 Mandatory Criteria

A park that meets the mandatory criteria is fully committed to achieving Zero Waste. It aims to inspire community transition, promote sustainability and remain adaptable to current challenges.

Criteria 1: Adopt a Zero Waste Strategy and share it publicly

The park must design and adopt a zero-waste strategy that outlines the highlevel vision and long-term goals for achieving zero waste, emphasizing the "why" and "what" of waste reduction, and providing a framework for decision-making. The strategy, along with yearly progress updates, must be publicly accessible and communicated both internally and externally – using signage, newsletters, website postings and any other useful channels. Such an approach will ensure that park managers, staff, visitors and the broader community are consistently informed of the park's zero-waste commitment and achievements. The Zero Waste Strategy should aim to:

• **Reduce residual waste generation annually:** Set and achieve an annual reduction target for residual waste generation. Each park should establish its own realistic reduction rate based on its unique context and residual waste production baseline.

• Separate 5 waste streams: Implement waste separation for at least five distinct streams, defined by each park according to local waste management facilities, local and European guidelines and specific needs.

• Build zero-waste capacity among staff: Ensure staff participate in at least one annual training dedicated to zero-waste practices to support ongoing learning. In addition to formal training, other activities such as workshops and knowledge.

Criteria 2: Implement an Annual Zero Waste Action Plan

The park must clearly define a yearly Action Plan supporting the achievement of the overarching goals outlined in the strategy. **This plan should**:

- **A.** Include specific activities to be carried out, a timeline, required resources, assigned responsibilities and a designated team.
- **B.** Integrate clear monitoring indicators to track progress.
- **C.** Be widely shared and communicated across the park's teams and focus groups to ensure broad engagement and alignment.
- **D.** Be reviewed and updated annually, based on the results achieved.
- E. Include initiatives in four key areas of work, identified as essential for supporting the reduction of residual waste generation:

1. Green waste prevention: In urban parks, green waste—such as leaves, pruned branches, weeds, and other organic material – makes up a significant portion of total waste. Given the park's available space, reuse and composting are natural ways to integrate green waste into the local ecosystem. Some examples are the reuse of wood chips and leaves in the soil, the repurposing of branches and wood for resting areas or playgrounds, as well as the implementation of green waste composting.

Composting is a very relevant action that can be done not only internally but also open to the community. Mind the different challenges considering the users and adapt communication, rules, and maintenance in both cases.

2. Zero Waste Events: Events held in the park should gradually align with the zero-waste strategy, and clearly communicate the goals and related requirements to organizers, participants, suppliers and vendors. Remember, positive and engaging messages are generally more effective and better received than prohibitive or negative statements.

Park events should integrate as many zero-waste measures as possible. Here are some examples that can be easily put in place:

- Reusable system for cups, avoiding single-use options, not only plasticbased but also from other materials.
- Waste stations with different streams to separate materials, along with clear signage and instructions.
- Implement zero-waste communication and decorations by avoiding physical handouts like flyers and brochures. Instead, opt for reusable items such as banners, fabric displays, LED lights, and live plants that can be used repeatedly.
- Choose sustainable and local catering options. Make a list of interesting and committed suppliers and share it with the team and partners. Inspiring others is a very simple action to promote a circular economy at the local level.
- Provide free drinking water to encourage the consumption of tap water.
- Encourage sustainable transportation like public transportation, carpooling, walking, or cycling.
- Set up a dedicated **zero-waste auditing team**, that will analyze waste collection data, identify areas for improvement, and give special attention to the residual waste stream. This way you will be able to refine zerowaste strategies in future events.

3. Repair and reuse promotion: The park should identify opportunities for material reuse in order to reduce waste generation and minimize reliance on new items. At least one best practice should be implemented, identifying further areas of improvement and impact. Here are some examples that can be easily put in place:

- Repairing tools and equipment to extend their lifespan.
- Avoiding single-use materials in purchases.
- and other park features.
- Promoting a sharing economy by encouraging the exchange of items such as bikes, toys, or books.
- Repurposing banners and other communication materials into useful items, even if in other areas besides communication, such as bags, wrapping paper, etc.
- Transforming wasted materials into park gadgets or using them in workshops, like making candles from orange peels, old materials for picnic towels, old t-shirts into practical totem bags, etc. Keep creativity up, it's a very good ally.

4. Regular zero-waste outreach campaigns: beyond permanent messaging, the park can enhance its outreach by running monthly campaigns that promote specific zero-waste actions. These campaigns might include updates on waste reduction progress, promotions of reusable alternatives to single-use packaging, and feedback collected from visitors and staff. Other campaign topics could raise awareness about litter prevention and encourage sustainable practices in the community.

TIP! Remember to use materials with criteria **concerning their full life cycle.** It is important not to permanently mix different materials, that separately would be suitable for recycling, but

mixed are considered nonrecyclable waste and will be sent to landfill.

- Repurposing fallen trees and branches for playground structures, seating,

Criteria 3: Create a Zero Waste Focus Group

The park must count with a Zero Waste Focus Group involving internal and external members and promote the active participation of a diverse group of people: internal staff, visitors, local decision-makers and partners.

The Focus Group should be involved in the Zero Waste Journey through regular meetings (ideally, every quarter). The Focus Group can participate in drafting the zero-waste strategy, reviewing and updating the annual action plans, as well as monitor the implementation of zero-waste actions.

Criteria 4: Zero Waste in procurement

Zero-waste procurement is crucial because it tackles the root of waste generation since traditional procurement often involves excessive packaging and shortlifespan products that guickly turn into waste.

By adopting zero-waste procurement, you can prevent waste before it enters the park, reducing the need for disposal or recycling.

The new procurement criteria should encourage the purchase of reusable, repairable, or recyclable materials, aligning with circular economy principles.

Choose materials with minimal environmental impact, such as recycled or reclaimed items, considering local origin and seasonality when sourcing ecofriendly and sustainably-made products. This supports the local economy and minimizes the carbon footprint associated with transporting goods over long distances.

- Here are some practical examples to consider:
- Bulk and package-free purchasing to reduce packaging waste.
- Local eco-friendly businesses for acquisition but also repair and maintenance.
- Modular and repairable equipment.
- Exchange economy, involving local groups and NGOs.

3.3 Optional criteria

If the park achieves further actions and more than the criteria suggested above, it means that the baseline is solid. Go further on this journey and don't waste opportunities for improvement, mobilization, or circularity. Once you're on board you will see that silently and slowly, the mindset of the ecosystem is turning and you gain fertile ground to implement zero-waste actions that require more effort and resources.

It's very important to maintain a well-described list of implemented criteria and to update the yearly Action Plan, so you don't lose track of achievements and replication possibilities, both in and outside the park.

The following optional criteria are examples of what can be done in the second stage of the Zero Waste Journey. However, each park can creatively sum up and increase the zero-waste commitment according to its means, creativity and partnerships.

Remember that the journey is made by walking!

Criteria 5: Zero chemicals

Chemicals are not part of a healthy, natural and sustainable ecosystem, leaving a trace of negative impact not just in plants and animals, but in the whole life cycle of soil, water and air. Taking action to totally avoid chemicals along with clear communication can be used as a very relevant influence point for the local community. Some examples:

- Lawn and garden organic maintenance: use organic fertilizers, compost and natural pest control. For example, introduce beneficial insects like ladybugs to control pests, or use mulch from park tree trimmings to naturally enrich soil and reduce weeds.
- Eco-friendly cleaning supplies: switch to biodegradable, plant-based cleaning products for toilets, picnic areas, cafeterias, community centers and other facilities.
- Manual and mechanical weed control: use weed control techniques like hand-pulling, mowing and mulching instead of herbicides. Invest in solarpowered or manual equipment for tasks like trimming and edging.
- **Bioswale installation:** install bioswales or rain gardens to naturally filter and absorb water, reducing runoff and pollution. This mitigates the need for chemical-based water treatment and enhances the local ecosystem.
- Non-toxic paint and coatings: use non-toxic, low-VOC (volatile organic compound) paints and coatings, ensuring safer materials that won't leach harmful chemicals into the soil or water.

Criteria 6: A Zero Waste Agenda for community engagement and participation

Establish a Zero Waste Agenda promoting various actions and events in the park. The goal is to integrate the zero-waste concept transversally into everyday practices, sports, cultural events, etc. Work closely with community groups and incorporate these activities into the park's regular schedule. It can include the following:

- Conducting a brand audit alongside waste cleaning activities;
- Supporting local markets focused on bulk sales and fair, sustainable commerce;
- Encouraging the establishment of repair cafés and exchange fairs;
- Organizing workshops for kids;
- Trainings on community composting;
- BRING YOUR OWN CUP events, like sports or cultural events with no cups or even no bins. Experiment during small events and learn from your experience and mistakes!

Criteria 7: No Bins Area

Regarding public awareness and ecological transition, parks must challenge themselves and their public to a new mindset. Therefore, we propose that at least one no-bins area must be implemented in the park, signposted by effective, simple and attractive communication regarding the rules and benefits of such a measure. Register and report feedback regularly in order to adjust the measures. A no-bin area can be a very good spot for systematic observation, giving some inspiration and guidelines to integrate into other areas of the park.

Criteria 8: Sustainable Infrastructure and Renewable Energy

Integrating renewable resources, such as energy and water, is a crucial step toward enhancing the park's sustainability and reducing reliance on fossil fuels. Examples include installing solar panels for clean energy generation, setting up rainwater reservoirs for reuse during dry seasons or to supply water features, and incorporating sustainable infrastructure like bicycle racks, electric vehicle chargers and eco-friendly toilets.

These initiatives can significantly reduce the park's environmental footprint while promoting a greener, more sustainable area.

3.4 Annual Monitoring

To kick-start the Zero Waste Journey at your park, simply take the first step. When it comes to transitioning to zero-waste in order to create a positive impact, there are no wrong answers. You'll shape the path as you go—experiment, test ideas, rethink strategies, adapt and share your learnings along the way.

However, in order to make it consequent in the long term, it is recommended to monitor the implementation of the zero-waste strategy and plan, reviewing results annually to assess the park's progress based on three key objectives of the strategy:

- 1) Reduction in residual waste generation;
- 2) Effective separation of the five waste streams;
- 3) Capacity building for staff.

Draw inspiration from various sources, and connect with the Zero Waste Urban Parks community to share results and receive guidance. While the community is informal, its members are eager to engage, expand the network, and welcome new people, ideas and experiences.

As an open, European-funded community, it's important to acknowledge other dreamers who are already turning the dream into reality.

Find inspiration at:

- Green Flag Award
- Zero waste Cities
- EUROPAC NETWORK

Impact & further movement

In closing, I hope to serve as both an inspiration and a practical guide on the journey towards Zero Waste in urban parks.

The best practices, guidelines, and criteria outlined here are tools designed to help any park, regardless of size or location, embark on its own path to Zero Waste. But this journey is most effective when we move forward together, involving local communities, collaborating with municipal governments, and building partnerships with NGOs, associations, families, and businesses. This cooperative spirit is at the heart of Zero Waste: minimizing waste production while maximizing opportunities for collective action.

By collaborating with other parks and organizations, you can effectively learn from others' experiences and create new opportunities. As stewards of green spaces, I invite all parks to join this movement. Together, we can shape greener, cleaner, and more resilient cities. Let us move toward a future where zero waste is not just an aspiration but a shared commitment to a healthier planet and a more sustainable urban lifestyle.

Take the learnings to your daily life! Avoiding waste production, not wasting opportunities and making the journey in a cooperative way is an invitation that applies not only to parks.

The Zero Waste Urban Parks that have already started this journey across Europe are already a support network to evolve and experiment together. All the organizations are willing to learn, share, experiment, visit and also available to receive, connect and build new opportunities.

The Voice of the Zero Waste Urban Parks first starters:

Lieve Stoops

Manolo

(Sevilla, Spain)

Campuzano

Izquierdo

Director of Alamillo Park

Director of the Vrijbroekpark, the province of Antwerp (Mechelen, Belgium) "When we started the journey towards a zero-waste park we did not know what our aim was. What does zerowaste truly mean? It appeared to be much more than removing waste bins from our park. It became a guidance in decision-making for park management and even a way of life.

We are grateful towards zero v We all are deal climates, differ discussing was have surprising Our shared mo great time in a for that environ I hope this guid inspiration, jus take on this ch active in your p volunteers and will give you th journey feels d brings you close

"Just before we were offered the opportunity to join this project, we were beginning to plan how to improve our waste management. Fortunately, by joining, we realized that the best approach is to reduce waste as much as possible.

Our visitors inc practices, and s innovative chal park's daily life. In addition to c about the possi of our visitors, t even the public a significant and Living in a com caring for our s fosters a much

Get in contact or share with us!

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We are grateful for the opportunity to start the process towards zero waste with partners from all over Europe. We all are dealing with unique circumstances-different climates, different way of park life. Yet, when we began discussing waste and human behavior, we discovered we have surprisingly a lot in common.

Our shared motivation? We all want our visitors to have a great time in a natural environment, which makes caring for that environment essential. Simple, right? I hope this guide helps you to find connection and inspiration, just as we experienced by creating it. Don't

take on this challenge alone, do it together with partners active in your park, with other park managers, with your volunteers and last but not least with your visitors. It will give you the strength to go forward even when the journey feels difficult, trusting that every small effort brings you closer to a zero-waste park."

Our visitors increasingly demand more sustainable practices, and striving to achieve "Zero Waste" is an innovative challenge that has already become part of the park's daily life.

In addition to changing how we operate, we are excited about the possibility of inspiring changes in the behavior of our visitors, the organizations we collaborate with, and even the public administration itself. We hope to achieve a significant and lasting impact.

Living in a community means taking responsibility for caring for our shared environment, and this project fosters a much-needed change."

Monika Pec-Święcicka

Vicedirector of Wroclaw **Municipal Greenery Authority** (Wroclaw, Poland)

"Being part of the Zero Waste Urban Parks project gave the Wroclaw Municipal Greenery Authority a great opportunity to learn, share, and implement new ideas based on a zero-waste approach. We were able to see how different parks could be and how differently their management was organized, yet we faced the same problems and similar challenges.

Working together allowed us to be more effective, and the wonderful group of people involved encouraged us to start making changes in Grabiszyński Park. From our experience with other topics, we know that it is always a process in which communication with the local community plays a crucial role. We are excited about making the city environment cleaner and more friendly for everyone, and we are very grateful for the opportunity to be part of this eye-opening Zero Waste Urban Parks project."

Prof. António Guerreiro de Brito

president of Instituto Superior de Agronomia /Tapada da Ajuda (Lisbon, Portugal)

"The Zero Waste Urban Parks project is an extraordinary initiative that brings together the skills and collective intelligence of different partners in pursuit of environmental sustainability. At the Instituto Superior de Agronomia (ISA), we are excited to follow the project's outcomes and ready to implement its measures and technical solutions on our academic campus. Our goal is to engage students and faculty in a shared mission, fostering a true zero-waste culture. By doing so, we aim to overcome the challenges of our current reality and take concrete steps toward a more sustainable model

We are ready to act. Let's do it!"

M. Cristina Sousa

Zero Waste Lab (Lisbon, Portugal) "Zero Waste Urban Parks proposes a very simple and efficient tool to rethink parks logistics and operations in order to reduce the waste production, by circulating resources internally, and working in a close loop with the local community.

The network created a relevant pool of shared practical knowledge that guides parks on the Zero Waste Journey, contributing directly to ecological transition and climate action at local level.

Parks are places of joy and pleasure, and the park teams we've met have inspiring people with a lot to teach and willing to learn ... the perfect open space for progressive transition! Together we can make the dream work... step by step."

Ellie Young

ACPP - Peace and Justice NGO (Sevilla, Spain)

Danuta Łukasińska

Ekopotencjał (Wroclaw, Poland)

Marjolein Vervoort

Park ranger in the Vrijbroekpark, the province of Antwerp (Mechelen, Belgium)

can only thrive through collaboration at every level. Parks provide a peaceful escape from city life, and keeping them waste-free is a shared responsibility and a benefit to all." "The Zero Waste Urban Parks project has become an excellent opportunity for an international discussion and search for answers to the questions "how to prevent littering of green areas?", "how to encourage people to pick up trash after picnics?" Questions, to which no one has yet found a good answer. The project is extremely valuable to us, because its results are not merely theoretical considerations. The project has become an impetus for zero-waste activities - here and now, for example, through pilot events in parks promoting picnics with homemade food and reusable cups. The results of the project are already visible today, and we know that this is just the beginning of the journey to zero-waste urban parks."

"I find it essential to work together toward a wastefree green space, where both colleagues and visitors hold sustainability in high regard. Though it may sound idealistic, only by making gradual changes and planting enough seeds can we bring about meaningful change. As a park ranger overseeing the diverse fauna and flora, and welcoming visitors who appreciate this beauty, I see it as both my duty and privilege to build this path, step by step. My role in Vrijbroekpark brings me close to both nature and people, offering a unique chance to inspire visitors to cherish even the smallest creatures, fostering their love and respect for all life in the park. This commitment fuels my ongoing dedication to engage others, here and beyond, in our shared journey toward Zero Waste-and I start with myself!"

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"Zero Waste Urban Parks was created to reclaim the cooperative spirit, emphasizing that parks are for everyone and should be nurtured collectively. By transforming parks into zero-waste spaces, we cultivate sustainability and shared responsibility as well as active participation, justice, and equality.

At ACPP, we are committed to enhancing the well-being of the communities we serve, fostering engagement and inclusivity. These "green bubbles" in urban environments

The Zero Waste Urban Parks community

Annex Project methodology

1. Context

- 2. Literature review summary
- **3.** Surveys
- 4. International collection of best practices
- 5. Handbook co-creation process

Annex

Templates

Group Exercise 1: Define your implementation strategy Group Exercise 2: Become a nudge designer Group Exercise 3: Measure your zero waste impact

