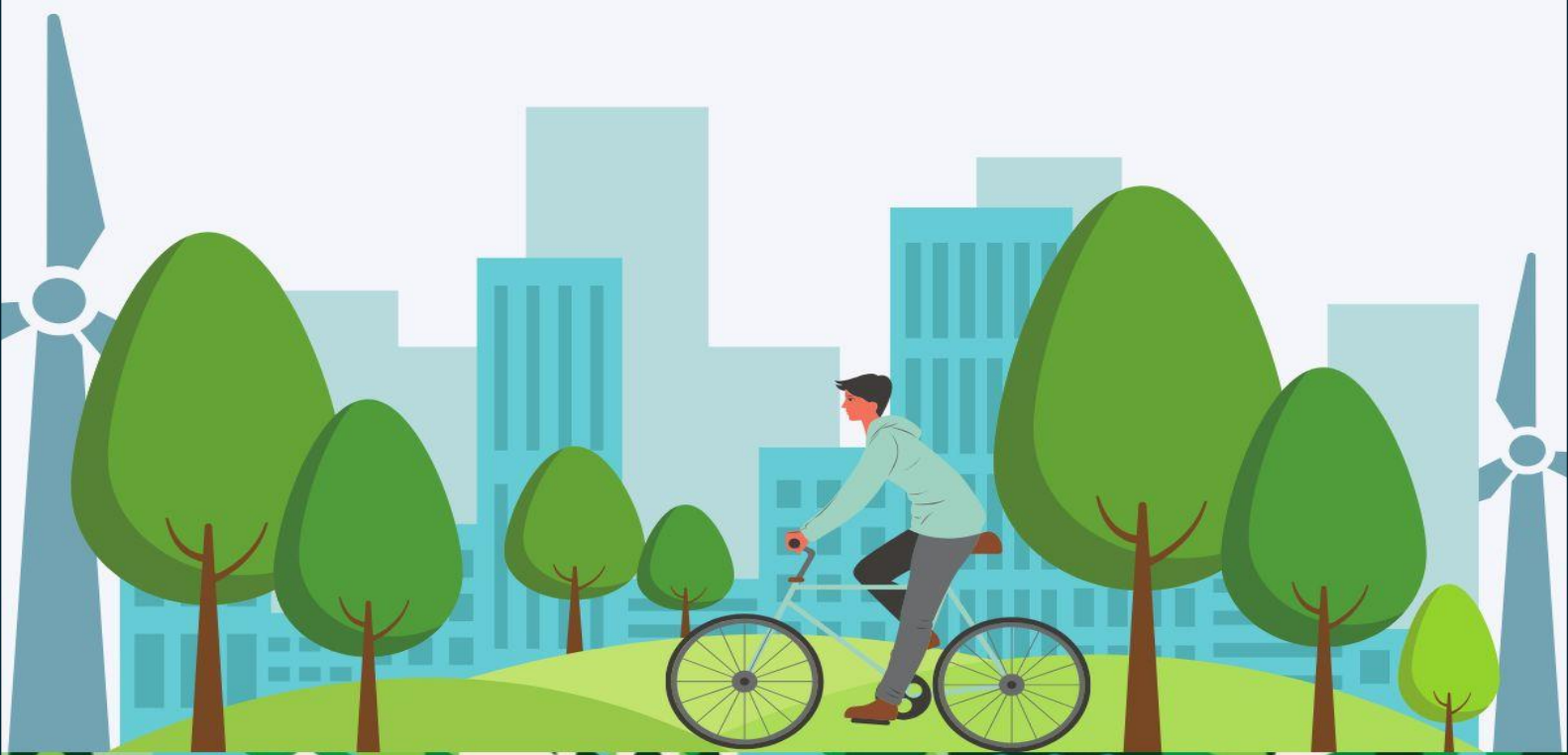




GoGreen

LOCAL ACTION FOR EUROPEAN GREEN DEAL



Best practice guide

A BLUEPRINT FOR SUSTAINABILITY SOLUTIONS IN LOCAL GOVERNANCE



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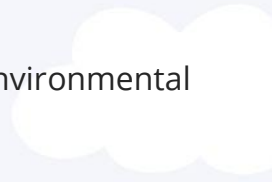
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Local Action for the European Green Deal

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Preface

In a time when environmental sustainability is no longer optional but imperative, Europe leads the way with innovative and transformative strategies, showcased through the [European Green Deal](#) - a comprehensive roadmap to achieve climate neutrality by 2050.

Yet, the ambitious goals, extensive support networks, guidelines, and funding often struggle to reach and be fully implemented by local agents on the frontlines. To bridge this critical gap, the **GoGreen - Local Action for the EU Green Deal** project was launched under the Erasmus+ program.

This initiative empowers local decision-makers, public officials, and consultants with the knowledge and tools to drive local environmental progress. Over three years, GoGreen united six partner institutions from five European countries, delivering four tailored training courses that engaged dozens of municipalities, NGOs, rural development associations, and academic institutions with remarkable results. The project's collective expertise culminated in key resources, including an e-book on Environmental Local Governance for the 21st Century, a Resource guide on Essential networks and opportunities, and the present best practice guide.

We invite you to explore these resources at www.gogreen-erasmus.eu and hope they inspire and equip you to create a greener, brighter future for your organization and community.

Guide overview and objectives

This document is designed to inspire, guide, and empower local actors to adapt and replicate successful sustainability practices within their own territories. By providing detailed information on essential components such as goals, target stakeholders, policy context, impact, and lessons learned, the modules ensure that practices can be customized to meet the unique needs and challenges of different local contexts. The structured approach outlined in the modules facilitates the practical application of these strategies, allowing stakeholders—whether governments, businesses, or NGOs—to effectively address local sustainability issues.

The actions showcased also align with global frameworks like the EU Green Deal and the SDGs, thus serving as a roadmap to drive positive, long-term environmental, social, and economic impacts in such metrics.

Communication



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Love This Place, Leave No Trace, Ireland



Characterization	
Type of action	Environmental Education and Development of an Environmental Ethic
Geographical scope	National
Location	Ireland
Time scale	May-September 2022 of that years campaign
Organization in charge of the practice	Leave No Trace Ireland
Type of organization	NGO
Organization's brief description	Leave No Trace is Ireland's only Outdoor Ethics Education Program designed to promote and inspire responsible outdoor recreation. Techniques designed to minimise the environmental and social impacts in these areas are incorporated in and promoted by the national Leave No Trace education program
Contact person	Rachel Shawe, Funding and Membership Executive rachel@leavenotraceireland.org
Description	
Summary	In May 2022 Leave No Trace Ireland and nine partners launched the interagency national public awareness campaign targeting the issue of littering, dogs and fires in the outdoors under the tagline 'Love This Place'. The "Love This Place" campaign aims to change behaviours outdoors by raising awareness of our impacts and what we can do to make a difference.



<p>Goals</p>	<ul style="list-style-type: none"> • Promote and inspire positive behavioural change and personal responsibility in the outdoors • Address pressure points; littering, dogs, fires, habitat conservation and activities. • Engage with the public, dog owners, outdoor enthusiasts, and staycations interest
<p>Stakeholders</p>	<ol style="list-style-type: none"> 1. Leave No Trace Ireland 2. Sport Ireland 3. The National Parks and Wildlife Service, Department of Housing, Local Government and Heritage 4. Coillte 5. Fáilte Ireland 6. The Office of Public Works 7. Department of Rural and Community Development 8. Waterways Ireland 9. Dublin City Council 10. Horse Sport Ireland
<p>Policy context</p>	<ul style="list-style-type: none"> • National Outdoor Rec Strategy launched in 2023, Countryside Council • EU Green Deal • SDG Goals
<p>Social context</p>	<p>Since Covid 19 more and more people are connecting with the outdoors for mental health and wellbeing and this has a negative effect on the outdoors; 2022 people were still confused about the correct information when using the outdoors.</p> <p>This project was designed to project positive use of the outdoors. It engaged communities and people with their local area as well as what is happening around Ireland. Through social media posts on the Leave No Trace sites, individuals' stories were shared for the wider community to see.</p>
<p>Environment context</p>	<p>The campaign focused on addressing four critical pressure points which have become increasingly evident, as greater numbers of people 'stay-cation' and use outdoor public spaces for recreation, particularly since the Covid-19 pandemic. These pressure points were:</p> <ul style="list-style-type: none"> • Increased littering of the countryside and outdoor spaces • An increase in dog fouling, dog worrying and attacks on farm livestock, as the numbers of pet dogs approached an estimated 800,000



	<ul style="list-style-type: none"> • The devastation that can be caused by fires from campfires and barbecues that get out of control • Impacts to specific vulnerable habitats as a result of increased recreational activity.
<p>Starting point</p>	<p>The Campaign began with the development of messaging for a nationwide awareness campaign for the summer months in Ireland. The campaign featured a call to action which was to visit the Leave No Trace Ireland website.</p> <p>A bespoke landing page matching the tagline “Love This Place” was created for the campaign, providing guidance on responsible recreation for new and experienced users.</p>
<p>Detailed description</p>	<p>Leave No Trace Ireland, Ireland’s only outdoor ethics program, which promotes the responsible use of the outdoors, has launched its third national awareness campaign. The campaign urges the public to exercise care in their enjoyment of the outdoors, including public parks, open countryside, and beaches. Record numbers of people are taking part in outdoor activities, putting increased pressure on our outdoor spaces. The new campaign asks the public to “Love This Place” and “Leave No Trace” when enjoying the outdoors this summer.</p> <p>The 2022 campaign was a joint initiative with Government departments and leading state and independent organisations that promote outdoor activities and the responsible enjoyment of the countryside including Fáilte Ireland, Sport Ireland, the National Parks and Wildlife Service, the Department of Housing, Local Government and Heritage, the Department of Rural and Community Development, Dublin City Council, the Office of Public Works, Coillte, Waterways Ireland and Horse Sport Ireland.</p> <p>Development</p> <p>In 2022 the public was urged to take the following actions on key issues and pressure points in the outdoors:</p> <p><u>Littering</u></p> <ol style="list-style-type: none"> 1. Plan ahead and always bring a bin bag. By taking your rubbish home, you are playing your part in keeping our outdoor spaces litter free and beautiful.



Dog Control & Fouling

1. Bring poo bags and always pick up after your dog, bag it and safely bin it, or bring it home with you.
2. Keeping your dog on a lead shows consideration for others and avoids disturbing livestock and wildlife.

Campfires & BBQs:

1. No fires unless on a designated site. You should not light a campfire unless you have permission from the landowner and only ever in suitable, low risk locations.
2. If you are at a designated site where campfires are permitted, make sure you have the skills to set, use and extinguish a campfire. See for detailed guidance [Leave No Trace Ireland](#) on how to set and use a campfire safely.
3. Do not use disposable BBQs in the countryside.

The messaging of the project was developed and supported by over 90 stakeholder groups across the country.

Resources included;

- Dedicated Campaign Page
- Skill Section providing free educational materials
- “How to Support” section
- “Call to Action”-Take the LNT Pledge

Delivery

- Radio Advertisement with over 3.1 million listeners (79.2% of all radio listeners)
- Social Media
- 7 Videos
- 43 Graphics with Tailored Messaging
- Web Articles
- Communication Calendar
- Included Paid Advertisements
- 90 organisation disseminating a unified message
- 4.9 Million Impressions
- 2.5 million people reached

Evaluation

Research was conducted to understand the public’s attitudes and behaviour, in relation to:

- Importance of outdoor environment/ sustainable environment in people’s local community
- Attitudes towards protecting the environment/outdoor space



	<ul style="list-style-type: none"> • Appropriate and inappropriate behaviours when outdoors • Awareness of the impact of behaviours on the environment/outdoor space • Personal responsibility and the power to make a change • Potential messaging that can encourage the public to behave more responsibly when outdoors <p>The research suggested;</p> <ul style="list-style-type: none"> • Strong appreciation of the importance of the outdoors <ul style="list-style-type: none"> • Knowledge of some impacts, but variable on others • Lowest awareness of impact of irresponsible behaviours seen among those aged below 35 years • Respondents believe that they can make a difference <ul style="list-style-type: none"> • Unsure what actions to take in the outdoors • Support for messaging that includes simple actions, empowerment and shared responsibility • Clear support for unified messaging
Impact	
Beneficiaries	Outdoor Recreationists, Landowners and Land Managers
Environmental results	Increased Awareness and Support for protecting natural landscape
Social results	Stakeholder engagement
Targeted SDGs	3, 11, 12, 13, 14, 15, 17
EU Green Deal	Protecting the environment and oceans with the Green Deal
Learnings	
Challenges faced	The co-creation process is a rewarding initiative. However, working to build a unified message with over 90 stakeholders requires a substantial amount of administration and facilitation.
Lessons learned	The research showed support for a unified approach to messaging. There is also support for tailoring the messaging to different demographics (<35) The promotion of personal responsibility and showing how a person can make a difference arose from the campaign.
Potential transfer	to While requiring a significant amount of facilitation and stakeholder engagement, this type of project is highly transferable.



Resources	
Financial	€125,000
Funding	€125, 000 € - Funded by 10 project partners
Human	3 Part time Educational Officers and Coordinators
Duration of implementation phase	3 months
Additional or useful information	
Internet links	https://www.leavenotraceireland.org/love-this-place-leave-no-trace/





Croagh Patrick Ambassadors Program, Ireland



Type of action	Resource Management, Communication and Education
Geographical scope	Local
Location	Westport and Murrisk, Co. Mayo, Ireland
Time scale	August 2022-September 2023
Organization in charge of the practice	Leave No Trace Ireland
Type of organization	NGO
Organization's brief description	Leave No Trace is Ireland's only Outdoor Ethics Education Program designed to promote and inspire responsible outdoor recreation. Techniques designed to minimise the environmental and social impacts in these areas are incorporated in and promoted by the national Leave No Trace education program
Contact person	Ivana Connor, Project Officer- ivana@leavenotraceireland.org
Description	
Summary	Over 120,000 people climb Croagh Patrick annually. However, the mountain currently does not have any statutory or legal conservation protection or status. The increase in visitor numbers has resulted in



	<p>many negative impacts on the mountain, the most visible of which is the path erosion on privately-owned land.</p> <p>Twelve official Croagh Patrick Ambassadors were recruited as volunteers and are tasked with engaging with visitors on the mountain. The volunteers have completed their bespoke Ambassador Training Programme and will commence their duties on the mountain.</p>
Goals	<p>The aim of the program is to drive public awareness of the importance of care and respect for our natural heritage, to empower positive behavioural change and develop skills around outdoor recreation so that locals and visitors can continue to enjoy and protect Croagh Patrick and its surrounds.</p>
Stakeholders	<ul style="list-style-type: none"> • Leave No Trace Ireland • Heritage Council • Mayo County Council • Croagh Patrick Stakeholders Group • The Sustainable Access & Habitat Restoration Project Team • Mountaineering Ireland • Mayo Mountain Rescue • Westport Parish
Policy context	<ul style="list-style-type: none"> • National Outdoor Recreation Strategy • Heritage Council Strategic plan • Heritage Ireland 2030 • Biodiversity Action Plan
Social context	<p>This project will address the conflict caused by users on Croagh Patrick. Trail degradation and impacts on working farms has been a significant problem for many years.</p>
Environment context	<p>With the large numbers of visitors each year, Croagh Patrick has experienced many negative impacts. Impacts have included visitors bringing dogs onto the mountain, off lead, where there are farm animals present, littering, overcrowding and pollution of the mountain streams. The most visible impact to date has been the erosion of the mountain path which through the Sustainable Access and Habitat Restoration project, undertaken by the Croagh Patrick Stakeholder group, is being restored.</p>
Starting point	<p>This programme came about as it was recognised there is a need for behavioural change of visitors coming to Ireland's holy mountain, to conserve its unique biodiversity and cultural heritage for future generations to enjoy.</p>



	<p>A stakeholder mapping exercise was completed to get a visual representation of all the people with an interest in Croagh Patrick, its management and ultimately the project. The key stakeholders were communicated with throughout the Programme, provided key feedback at the development stage and assisted in the training programme for the volunteers.</p> <p>Four days of specialised training was developed for the Croagh Patrick Ambassador Programme, with delivery facilitated by Leave No Trace Trainers. The training programme included, curriculum development specific to Croagh Patrick and the role of the volunteers and development of course materials.</p>
<p>Detailed description</p>	<p>The Croagh Patrick Ambassador Program was created due to the increase in recreational impacts such as trail widening, litter and animal disturbance on Ireland’s holy mountain. Mayo Co. Council wanted to work with local residents and local landowners to reduce these impacts and to foster place attachment and environmental responsibility.</p> <p>The aim of the program was to drive public awareness of the importance of care and respect for our natural heritage, to empower positive behavioural change and develop skills around outdoor recreation, so that locals and visitors can continue to enjoy and protect Croagh Patrick and its surrounds.</p> <p>This would be achieved by providing training and support for 8 volunteers, who would also receive support from Leave No trace Ireland and Mayo CoCo. These Volunteers would then routinely spend time on Croagh Patrick, discussing and engaging with visitors to the site. This would serve a number of purposes;</p> <ul style="list-style-type: none"> • Provision of Information • Education of Impacts to the environment • Encourage people to behave responsibly in the outdoors • Monitor Dog usage in the uplands <p>Leave No trace Ireland designed the training module, which focused on</p> <ul style="list-style-type: none"> • Environmental Awareness • Communication Techniques • Conflict Resolution and Facilitation • Leave No Trace Training. <p>A recruitment campaign was launched by Leave No Trace Ireland, as well as a screening of applicants. Applicants who showed a desire to</p>



	<p>protect the natural landscape and cultural heritage of Croagh Patrick were chosen. In total 8 volunteers were selected.</p> <p>The volunteers were provided with Communication Workshops and both a Leave No Trace Ireland Awareness and Trainer Courses. A Volunteer Calendar and Rota were developed and a supporting FAQs document.</p> <p>The Communications Campaign comprised a project Dissemination Strategy, a press release, a dedicated webpage for the Programme , a social Media Campaign, videos for Social Media and a educational Booklet.</p>
<p>Impact</p>	
<p>Beneficiaries</p>	<p>Local Residents</p>
<p>Environmental results</p>	<p>Reduction in Environmental Impact on a culturally significant area</p> <p>Arising from the Programme the direct public benefits include;</p> <ul style="list-style-type: none"> • Croagh Patrick returning to a healthy, vibrant upland location for all to continue to access and enjoy sustainably. • Direct habitat protection, increased awareness, appreciation and stewardship of the natural environment through the Ambassadors • Assists local climate change preparation for resilience through conservation and awareness.
<p>Social results</p>	<ul style="list-style-type: none"> • Increased ownership and environmental awareness. Improved relations with landowners and users. • A wider and larger audience are aware of, and are involved in, enjoying and protecting our outdoor heritage at Croagh Patrick. • Natural heritage is better explained. • People learn about natural heritage, leading to changes in behaviours and are empowered. • People achieve greater wellbeing. • People develop skills around outdoor recreation and environmental protection. • The Programme drives public awareness of the importance of care and respect for our natural heritage. • Scope for the Ambassador Programme to be rolled out and delivered across multiple upland locations around Ireland. • Active support of the management and conservation of upland heritage



	<ul style="list-style-type: none"> Facilitates sustainable access to heritage with inclusion for all
Economical results	Reducing the impact of outdoor use on agricultural land
Targeted SDGs	3, 14, 17
EU Green Deal	Protecting the environment and oceans with the Green Deal
Learnings	
Challenges faced	<p>Conflict with irresponsible behaviour, and pushback from communication of best practice are to be expected from the program</p> <p>The original application for the Ambassador Programme had sought funding to the total of €30,000, from the Stewardship Fund with an additional 25% contribution from Mayo County Council to the total project cost. The funding awarded was €15,000 with the 25% contribution from Mayo County Council bringing the total funding to €18,750. Certain measures had to be taken to address the funding awarded. This included that certain elements of the programme were scaled back, for example, it was not possible to include podcasts in the programme, as had initially been planned. Also, several additional features of the training programme were provided, in kind, by Leave No Trace Ireland, e.g. uniforms for the Ambassadors and inclusion of the two-day Leave No Trace Trainer Course to the training programme.</p>
Lessons learned	To ensure training is completed before the volunteers begin. Ensure that volunteers work in pairs.
Potential transfer	to Very easy to transfer and is being considered in other places.
Future actions	Currently Leave No Trace is monitoring and offering support to the volunteers as they do their work.
Resources	
Financial	€20,000
Funding	<p>Funded by Mayo Co. Council and The Heritage Council</p> <p>The Heritage Council Stewardship funding awarded was €15,000 with the 25% contribution from Mayo County Council bringing the total funding to €18,750.</p>
Human	8 volunteers, and 2 part time staff to offer support



<p>Material / Logistics</p>	<p>8 Volunteer uniforms, (Jackets, t shirts, jumpers, high vis, first aid kit) When Volunteering, Ambassadors will need:</p> <ul style="list-style-type: none"> • Ambassador uniform • Layers of suitable clothing • Waterproofs • Sturdy waterproof footwear (such as hiking boots or shoes) that will support their ankles • Food & drink • First Aid Kit for personal use • Mobile phone <p>If Ambassadors are carrying out a litter pick & recording litter collected, they will be supplied with:</p> <ul style="list-style-type: none"> • Litter Survey Form • Plastic bags to collect litter • Litter pickers • Gloves
<p>Duration of implementation phase</p>	<p>1 year</p>
<p>Additional or useful information</p>	
<p>Internet links</p>	<p><u>New Ambassador Programme to Promote Sustainable Use, Habitat Protection and Enhanced Visitor Experience on Croagh Patrick - Leave No Trace Ireland</u> <u>Croagh Patrick Ambassador Programme - Leave No Trace Ireland</u> <u>Croagh Patrick Ambassador Programme National Heritage Week 12 – 20 August 2023</u></p>
<p>Others</p>	<p>Educational Booklet – Development and graphic design of an educational booklet to support the Volunteer Ambassadors in their role was undertaken. The final booklet includes feedback received from Mountaineering Ireland and Mayo Mountain Rescue as well as the inclusion of a high-resolution map from OSI.</p>
<p>Others</p>	
<p>The Croagh Patrick Ambassador Programme has been awarded the Eco-Group of the Year in the annual <u>Outsider Awards 2022</u>, which took place on the 1st of February in The Sugar Club in Dublin - <u>Croagh Patrick Ambassadors win Outsider Awards Eco-Group of the Year! - Leave No Trace Ireland</u></p>	



Social Engagement



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Corporate Social Responsibility: Hotspot Program, Ireland



Characterization	
Type of action	Biodiversity Resources Management
Geographical scope	Local
Location	Country Wide
Time scale	Feb - Dec 2022
Organisation in charge of the practice	Leave No Trace Ireland
Type of organisation	Public/Private NGO, public administration, local government, etc.
Organization's brief description	Leave No Trace is Ireland's only Outdoor Ethics Education Program designed to promote and inspire responsible outdoor recreation. Techniques designed to minimise the environmental and social impacts in these areas are incorporated in and promoted by the national Leave No Trace education program
Contact person	Noel Doyle- Research Executive- Noel@leavenotraceireland.org
Description	
Summary	<p>Bull Island is a low lying, dune covered sand spit in Dublin Bay off the coast of the city's North side. North Bull Island is a national nature reserve in Dublin Bay. A haven for both local and visiting wildlife, the area has several nature conservation designations for the habitats and species it supports. It's designated as a special amenity area for its aesthetic and recreational value and is an integral part of the Dublin Bay Biosphere.</p> <p>The Hot Spot Program is a critical initiative, designed to address areas impacted by outdoor activities and heavy use. Using Leave No Trace solutions, these areas can be restored and thrive again. The chosen location receives a unique, site-specific blend of training, expert consulting, education programs, service projects, monitoring programs and more. With site-specific Leave No Trace measures in place, the area</p>



	is equipped to bounce back from impacts and recover its natural qualities. The result is a sustainable outdoor area that is on the road to recovery.
Goals	The purpose of the Hot Spot Program is to teach people how to make responsible decisions when participating in outdoor activities, to promote a sense of stewardship for the natural world, and an understanding of how to reduce our carbon footprint.
Stakeholders	<ul style="list-style-type: none"> • Leave No Trace Ireland • Deloitte Ireland • Local Residents • Bull Island Action Group • Raheny Tidy Village • Dublin City Council
Social context	This project gets people working with a corporate company to get involved in taking care of their local community. They are taught different things throughout the day and complete a litter pick as part of their contribution. This project gets people out of the office setting for a day and gives a positive impact to the environment. It is important, as it gives awareness and knowledge to groups that may have not had the opportunity to learn such things otherwise.
Environment context	<p>Bull Island, a man-made formation created 200 years ago after the construction of the North Bull Wall, is crucial for biodiversity. Despite its artificial origins, it continues to grow seaward and now spans 5 km in length, 1 km in width, and covers nearly 15 km².</p> <p>This coastal area is designated as a Nature Reserve, Special Protection Area, Special Area of Conservation, and a UNESCO Biosphere Reserve, attracting many visitors annually. However, the surge in outdoor recreation, particularly during the Covid-19 pandemic, and the spread of invasive species have led to environmental stresses.</p> <p>The Dublin City Council's Action Plan highlights the threat posed by the invasive Everlasting Sweet Pea, (<i>Lathyrus latifolius</i>) recommending its eradication from the island.</p>
Starting point	A baseline survey of Bull Island was conducted on the 01 st April 2022 by Leave No Trace Ireland, with assistance from Dublin City Council, and supporting information provided by Raheny Tidy Village and the Bull Island Action Group. This consultation confirmed the expected site-



	<p>specific pressures, alongside proposed solutions with timeframes to tackle them.</p> <p>The following specific actions were identified through this consultation:</p> <ul style="list-style-type: none"> • Removal of litter and waste Coordinated litter removal efforts • Invasive species management Removal of Everlasting Pea from selected areas of sand dunes, in cooperation with Dublin City Councils invasive species management efforts. • Big Beach Biodiversity Surveys - Increase in local biodiversity data and awareness. Targeted data collection to identify flora species present throughout the woodland. All data collected is uploaded to the National Biodiversity Data Centres database. <p>The above actions provided clarity and structure to the project's future at Bull Island and were placed at the forefront of the project's objectives, alongside the facilitation of responsible outdoor recreation events and resources.</p>
<p>Detailed description</p>	<p>In 2022, Leave No Trace Ireland teamed up with Deloitte, to embark on a pursuit to aid in the recovery and increase the collective knowledge of North Bull Island, Co. Dublin, through the site-tailored Leave No Trace 'Hot Spot Project'.</p> <p>The project strived to improve this local amenity through the removal of litter, invasive species management, improvements to sand dunes and local engagement. The efforts were successfully achieved through effective collaboration between multiple professional and community organisations, over the course of this project.</p> <p>. Big Beach Biodiversity Survey</p> <p>As part of the CSR impact element of the Hot Spot project, it was deemed appropriate to conduct a series of Big Beach Biodiversity Surveys of targeted areas on the shore, with an overarching aim to 'Increase local knowledge and add to the national database at the same time.</p> <p>Pragmatic sampling was used to select the 5 locations where the biodiversity surveying took place, and the data collected focused on both</p>



species' diversity and species abundance. All data was submitted to the National Biodiversity Data Centre's database.

The surveys were carried out under the guidance of Padraic Creedon from Leave No Trace whose background is in Marine Ecology. Additional training on how to carry out these surveys was also provided by Dave Wall, the Citizen Science Officer for the National Biodiversity Data Centre.

These surveys were conducted with a 'citizen science' theme, in which its results have strengthened local belief that the biodiversity of Bull Island is of significance. Native marine species are becoming less common throughout Ireland's coast. Dollymount Strand, found on Bull Island, has always been an area of importance for monitoring the species distribution of coastal marine life.

The data recorded and submitted will be used to inform policy makers of the future of the changes and ever-growing threats faced by this fragile ecosystem.

Education Events

The Hot Spot Project facilitated the provision of 6 education events in 2022, through a variety of joint stakeholder workshops, community programmes and Deloitte staff engagements. While these events were tailored to suit each group, they all focused on connecting learners with the natural environment and promoting responsible outdoor recreation.

The first event was a webinar, made available to Deloitte staff and open to the public. The webinar acted as an introduction to the Bull Island Hot Spot project providing background information on the site, its current range of habitats and species, the impacts it is facing and how the project aimed to tackle these impacts.

Throughout each of the 4 CSR impact events, there was an active effort to, not only to improve the landscape, but, to also empower participants with the knowledge to understand the behaviours that lead to pressures on our natural resources and actions to reduce their own impact during outdoor recreation. This proved to be a favourable balance and was well received by participants.

To conclude the series of Hot Spot education events, in November 2022, Deloitte invited Padraic Creedon from Leave No Trace to their Audit and Assurance event at the Convention Centre. Padraic Creedon and Anthony



Raivellur spoke to the Deloitte staff about 'Our Impact Story' and the Hot Spot project at Bull Island.

Community Engagement

This project's objectives were achieved through effective engagement with the community at a local level and would not have been possible without the support of the Bull Island Action Group and Raheny Tidy Village group. The partnership between these groups, Leave No Trace Ireland and Deloitte was pivotal in the success of the project.

The Bull Island Action Group's wealth of experience in community action and restorative works at Bull Island was particularly crucial to this project's success, offering local knowledge and logistical support in facilitating environmental actions and events. This community knowledge in conjunction with the experience of the Dublin City Council staff, who manage the island led to the identification of the actions that required immediate measures from the project.

- Remove litter
- Manage invasive species
- Increase biodiversity data collection and awareness

Thereafter, these actions were presented to Deloitte by Leave No Trace Ireland, who agreed to offer their support through designated events at Bull Island, as part of the Hot Spot Project.

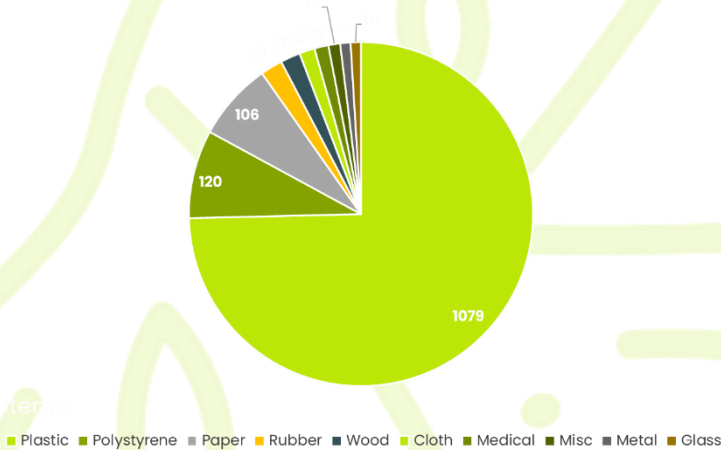
These community events were at the heart of this project, which empowered participants to interact within a positive social environment whilst doing something meaningful for the natural environment. The Bull Island Hot Spot project connected with over **300** learners throughout 2022.

Furthermore, an educational video was created to showcase the project and work carried out at Bull Island, and the reasoning behind it. This video has been well received on social media, which has increased engagement with the wider community.

The 2022 Hot Spot project at Bull Island can certainly be considered a success. The outcomes achieved exceeded initial expectations with more litter dealt with, species identified and logged, and invasive species removed from the island than planned. This is down to the commitment,





	<p>hard work, and enthusiasm of the participants, the vast majority of whom were made up of staff from Deloitte.</p>																						
<p>Impact</p>																							
<p>Beneficiaries</p>	<p>Recreationists, local users of the area</p>																						
<p>Environmental results</p>	<p>CSR Impact Events</p> <p>The Hot Spot project saw the facilitation of 4 exclusive CSR Impact Events at the North Bull Island Nature Reserve, in a collaborative effort from all project stakeholders, coordinated by Leave No Trace Ireland.</p> <p>These events focused on actions identified in the baseline survey and took place between June and September and welcomed over 130 people to Bull Island over 4 days.</p> <p>Litter picking and waste removal were conducted at targeted areas that were deemed areas of high recreational use, and an impressive total of over 56kg of waste was collected, and subsequently removed by Dublin County Council following these efforts. This equated to over 1,455 individual pieces of litter.</p>  <table border="1" data-bbox="443 1227 1166 1675"> <caption>Litter Composition</caption> <thead> <tr> <th>Material</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>Plastic</td> <td>1079</td> </tr> <tr> <td>Polystyrene</td> <td>120</td> </tr> <tr> <td>Paper</td> <td>106</td> </tr> <tr> <td>Rubber</td> <td>-</td> </tr> <tr> <td>Wood</td> <td>-</td> </tr> <tr> <td>Cloth</td> <td>-</td> </tr> <tr> <td>Medical</td> <td>-</td> </tr> <tr> <td>Misc</td> <td>-</td> </tr> <tr> <td>Metal</td> <td>-</td> </tr> <tr> <td>Glass</td> <td>-</td> </tr> </tbody> </table>	Material	Count	Plastic	1079	Polystyrene	120	Paper	106	Rubber	-	Wood	-	Cloth	-	Medical	-	Misc	-	Metal	-	Glass	-
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<p>Social results</p>	<p>Throughout the duration of the project, there was a strong emphasis on biodiversity, its value, our connection to it, and how we can protect it. This was one of the most well-received elements of the project, by both stakeholders and beneficiaries. Most notably, the level of engagement at events on topics relating to biodiversity always peaked, followed by questions, stories, and facts. This was evidently an integral part of the</p>																						



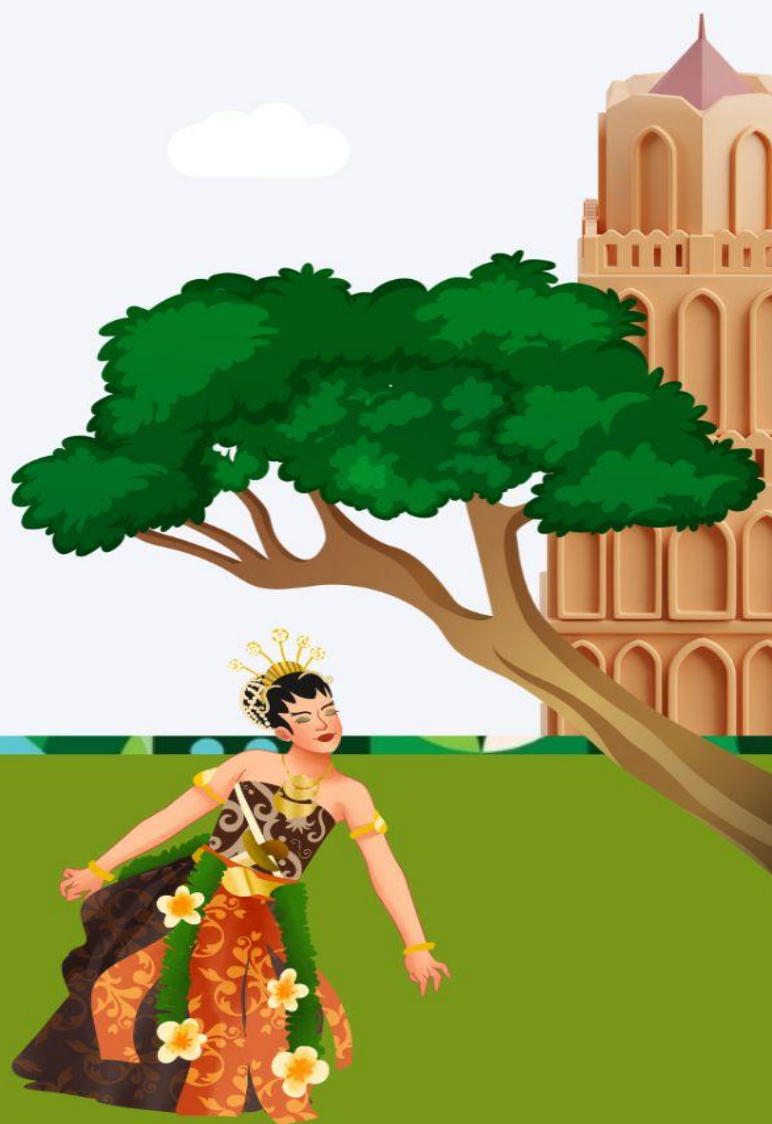
	<p>education at all events and should be a prominent addition in future projects.</p> <p>The Big Beach Biodiversity Surveys allowed for an interactive and inclusive approach to data collection, through Citizen Science, to gain a greater understanding of the life present on Bull Island. The submission of this data to the National Biodiversity Data Centre ensures another long-term legacy for this Hot Spot Project. That data can now be used in all discussions and decisions made about the island that may influence the biodiversity or use of the island in the future.</p>
Economical results	<p>Through these projects, corporate companies apply to offset their carbon emissions by having their staff volunteer for a day to improve the quality of the Irish landscape. This has an economical benefit to the companies, as their costs reduce if they reduce their carbon footprint.</p> <p>There are also economical results in cleaning up an area as there is less pollution, which reduces emissions and all of the waste is disposed of properly. This benefits the environment as the government is not then paying staff to go out and clean the area, with everything being sent to a landfill.</p>
Targeted SDGs	6, 11, 13
EU Green Deal	Protecting the environment and oceans with the Green Deal
Learnings	
Challenges faced	<ul style="list-style-type: none"> • Coordination of people / groups to run these events. • Site owner permission as land is predominantly privately owned. It can be difficult to get access in Ireland, even if this project did aim to benefit the environment. • Corporate groups agree on the date as it can be hard to manage different groups and have availability for all people on the same day.
Lessons learned	<p>A recommendation for the future would be to set aside one of the impact days so that it could take place on a weekend. This will allow much better engagement from the local community groups to take part as well. While we did have locals and local community groups attend the impact days that took place on weekdays, the number who can participate on those days due to work commitments is limited. One 'community centric' day would be a big boon for partnerships with local communities. Of course, any impact day that takes place on a weekend will be more challenging</p>



		for Deloitte staff to attend, so a balance should be found to best suit all stakeholders.
Potential transfer	to	Hight, as it can be done in any habitat.
Future actions		Continue to roll out “hotspots” in the future and have other companies and groups become involved in the projects.
Resources		
Financial		€22,000
Funding		Corporate Sponsored Programme - HotSpot
Human		Two full time environmental technicians and one environmental educator.
Material Logistics	/	When volunteers were carrying out a litter pick & recording litter collected, they were supplied with: <ul style="list-style-type: none"> • Litter Survey Form • Plastic bags to collect litter • Litter pickers • Gloves
Duration of implementation phase		3 months
Additional or useful information		
Internet links		HotSpot programme https://www.deloitte.com/ie/en/about/governance/global-impact-report/environment-bull-island-hotspot.html



Cultural heritage



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Gardens of the Future, Cyprus



Characterization	
Type of action	Cultural Heritage
Geographical scope	Local
Location	Nicosia, Cyprus
Time scale	2019 - ongoing
Organization in charge of the practice	Gardens of the Future
Type of organization	Community Organisation
Organization's brief description	Gardens of the Future, a project to create a network of communal gardens in cities.
Contact person	Dr Natasa Christou enterthegardens@gmail.com
Description	
Summary	Gardens of the Future aims to enable locals to become agro-entrepreneurs in the heart of Nicosia, so that the city can become a catalyst for sustainable action and position Nicosia as a role-model city.
Goals	The project aims to be a network of urban spaces, kickstarting in Nicosia and expanding across Cyprus. The project's aims are to establish zero-waste and circular economy premises in the heart of Nicosia, empower locals to become agro-entrepreneurs, educate youth on open-source technologies, process waste to produce new construction materials, and



	build sustainable communities that foster social and economic development.
Stakeholders	Volunteers, policy makers, NGOs, private organisations
Policy context	Nicosia used to have an abundance of water, wells, orchards, and gardens, but as with many other cities, this has changed as a result of urbanisation. The Garden of the Future was created to encourage local production, a very current and difficult issue for the city's urban development, in order to create a culture of sustainable development and collectively promote a new urban identity with a social, environmental, and economic dimension.
Social context	One of the main focuses of this project is community building and engagement. Sharing experiences in a communal garden enables the Gardens of the Future team to welcome everyone regardless of age, gender, religion, or ethnicity, to embrace our social differences and to facilitate the exchange of ideas and practices of care and hospitality.
Environment context	The garden's design becomes an ambassador for innovative techniques in responsible farming, resulting in a dynamic urban food sharing ecosystem.
Starting point	The Gardens of the Future concept emerged from questions raised, to which the founding members attempted to find innovative solutions that were directly related to the project's objectives. What exactly does it mean to run a green business? What can we do in the heart of a city to bring people of various cultures, ages, social and economic backgrounds together? How can we teach these people to "grow" their own food in their gardens or in a community garden? The Gardens of the Future entered competitions that provided them with the financial resources to get started in order to bring their ideas to life. They came in second place overall in the Global Climathon Awards. Furthermore, Gardens of the Future was labeled one of the 1000 best ideas for combating climate change in 2020. Gardens of the Future also won the Pusula Campaign after a public vote.
Detailed description	Gardens of the Future is a collaborative initiative to build the first pilot garden where food can be grown responsibly and the community can participate in cultivating garden plots, home gardens, and balconies. We celebrate the circular economy and sustainable entrepreneurship in order to strengthen social cohesion among neighbors and communities. We envision a network of gardens throughout the city, from school gardens to the moat, connecting to local food systems, vertical gardening, hydroponic systems, and other relevant new technologies.



It was the first garden to transform this private urban 'void' in the heart of the old city into a green, lush paradise open to the public, where people gather, co-create, learn and experiment, and share stories and experiences. In this way, they mobilize the local community, become agro entrepreneurs, heal the divide, revive tradition, promote innovation, and gradually create a new culture within the city itself.

Gardens of the Future is an aspirational initiative that aims to establish a network of communal gardens throughout cities, beginning with one space in the heart of old town Nicosia. The location, like the entire project, was carefully considered. The first garden's location is strategic in that it will energise surrounding communities and connect with local craftsmen and entrepreneurship clusters. The first location's proximity to the city was critical. Normally, we would grow gardens in our homes outside of cities, but many people nowadays live in apartments in city centers, but they still have plants and family members who know how to garden, so it's like connecting the past and present.

The founding team includes professionals from architecture, art and culture, social innovation, entrepreneurship, bicomunal activists, and even an innovative chef. These individuals have banded together to become ambassadors of long-term change. To achieve this, the initiative combines elements of nature, communities, architecture, and technology.

Furthermore, the Gardens of the Future team aspires to a) engage with migrants and asylum seekers in the old town and provide opportunities to gain new skills and feel part of the community; and b) organize practical learnings and other initiatives for locals/others on how to create their own gardens and grow their own food by utilizing new, affordable technologies and innovation. Following the pilot model in old town Nicosia, they intend to expand to nearby "gardens" and gradually apply the model to other cities in Cyprus, as well as internationally.

The act of cultivating together has been an important human ritual that has benefits beyond the biological need for food. In Nicosia, the garden serves as a temporary bridging mechanism between neighbors and communities, providing connective tissue for social exchange in ways that are rarely articulated in 'conflict' cities. They focus on the foundations of a co-city approach and aim to grow gardens as a network around cities, utilizing its main assets (people's collective power, underutilized spaces, and institutional support) to celebrate the city





	<p>itself. They have created a sustainable food supply chain that reduces food waste by producing products from the garden's plants. These actions will thus support climate mitigation efforts by improving urban space quality by reducing the heat island effect and the city's CO2 emissions.</p>
Impact	
Beneficiaries	<p>Volunteers, policymakers, non-governmental organizations, and private organizations were the primary stakeholders. They were all very interested in the case because it provided them with an opportunity to actively engage with the community at various levels and join forces with one goal in mind: to become ambassadors of sustainable change.</p>
Environmental results	<p>Increased awareness; Creation of a dynamic urban food sharing ecosystem.</p>
Social results	<p>Working collaboratively; Consider the existing diversity in the group; Maker space and educational programs; Development of partnerships and coalitions that help mobilise resources and influence policy systems.</p>
Economical results	<p>Assisting locals in learning how to create their own gardens, grow their own food, and open doors to economic freedom through agricultural activities.</p>
Targeted SDGs	4, 5, 6, 9, 10, 11, 12, 13, 16
EU Green Deal	"Chapter" of the EU Green Deal that is tackled by this module
Learnings	
Challenges faced	<p>One of the main challenges the Gardens of the Future team faced was the acquisitions of the land where the pilot model garden was built, which took several years. Another challenge was transportation, as there was a lack of capitalization in the required timeframe. Finally, as the initiative started around 2020, the COVID-19 crisis delayed the operations and the launch of the project.</p>
Lessons learned	<ul style="list-style-type: none"> • Be honest, transparent, engaging and accessible. • Implementation of strategic planning through participation. • To achieve success and gain results, involve the community.



Potential transfer to	The effort can grow to surrounding "gardens" and progressively adapt the model to other cities if it follows the pilot model of the main Garden in Nicosia.
Future actions	The Gardens of the Future team will be participating in the CITIES FORUM 2023, in Torino, Italy. This biennial event organised by the European Commission's Directorate General for Regional and Urban Policy. It is a unique opportunity to capitalise on recent advancements in several EU projects and policies aimed at providing more cohesive assistance to cities in implementing sustainable urban development, particularly through funding, capacity and knowledge building.
Resources	
Funding	50,000€ funded by World Bank Sponsorships and assistance from other communities, organisations, and individuals.
Human	Core team: Dr. Natasa Christou (initiative coordinator and space principal architect), Argyro Toumazou (Community Facilitator & Cultural Producer), Steven Stavrou (Cyprus Inno: Bi-communal, engagement with sustaining the community), Burak Berk Doluay (Cyprus Inno: Bi-communal, engagement with sustaining the community), Chris Tofarides (Creating food as a social connecting experience), Andreas Angeli (Clean Tech & Social Innovation), Paul Koronis (Social responsibility and engagement), Panayiota Polykarpou (LinkedIn), volunteers
Duration of implementation phase	May 2019 - (ongoing)
Additional or useful information	
Internet links	https://gardensofthefuture.com/ https://www.cypruspusula.org/campaigns/108-gardens-of-the-future
Others	Gardens of the Future Interview conducted by SYNTHESIS Center for Research and Education in the context of the Erasmus+ project HECSOs - https://youtu.be/JdjjYn1uzLs
Others	
Pusula Award 2019 Second prize Global Climathon Awards 2019 New European Bauhaus 2022	





Biodiversity conservation and ecosystem services



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Biodiverse Carbon, a carbon offset mechanism, Portugal



Characterization	
Type of action	Ecosystem Services / Empowering Rural Communities / a carbon offset
Geographical scope	Regional
Location	Lousada, Porto, Portugal
Time scale	2022-Ongoing
Organization in charge of the practice	VERDE Association for the Integrated Conservation of Nature
Type of organization	NGO
Organization's brief description	VERDE is a nonprofit organisation created to integrate the conservation and regeneration of nature into the routine of the Portuguese people, implementing direct actions with the minimum possible intervention to reach the maximum results in preservation. They implement strategies with the goal of valuing the territory and ensuring its preservation.
Contact person	João Gonçalo Soutinho, geral@verde-associacao.pt
Description	
Summary	Carbono Biodiverso is an innovative program by VERDE aimed at connecting individuals and organizations, referred to as "Guardians," with landowners or managers ("Keepers") of ecologically valuable trees known as "Green Giants." The initiative incentivizes the preservation of these trees by offering financial compensation, funded through carbon offset contributions from Guardians. Additionally, the program



	<p>facilitates ecological restoration activities such as planting native trees, controlling invasive species, and building biodiversity support structures. Since its launch, it has provided an effective mechanism for climate action and biodiversity conservation while fostering community involvement and awareness.</p>
Goals	<ul style="list-style-type: none">• Preserve large trees (Green Giants) with high ecological and carbon storage value.• Promote ecological restoration through tree planting, invasive species control, and biodiversity structures.• Enable individuals and organizations to offset their carbon footprint in a meaningful, localized way.• Strengthen community awareness and engagement in ecosystem preservation.
Stakeholders	Individuals and organizations, referred to as “Guardians,” and landowners or managers (“Keepers”) of ecologically valuable trees
Policy context	Portugal currently lacks national policies to protect large-dimension trees, leaving these often centuries-old giants vulnerable to indiscriminate felling. These trees provide immense value through ecosystem services, far exceeding their worth as timber. In response, the municipality of Lousada has enacted local legislation to protect identified "Green Giants" within its territory. However, to ensure their preservation, tree owners must receive adequate compensation for the care and maintenance required to sustain these natural assets.
Social context	Large trees, or "Green Giants," frequently hold sentimental value for their owners, yet they rarely generate financial returns unless harvested for timber. During economically challenging times, rural landowners often resort to cutting these trees to secure short-term revenue. In Lousada, thanks to the municipality's consistent efforts in recent years, there has been a noticeable increase in public awareness and sensitivity toward nature conservation, creating a more receptive environment for initiatives aimed at protecting these valuable natural resources. However, rural people are still more prone to be suspicious of innovative solutions that impact their territory.
Environment context	Lousada is a peri-rural region that has experienced significant human impact, posing challenges to its natural ecosystems. Nevertheless, the municipality has already begun implementing numerous environmental initiatives to safeguard its natural heritage, laying a strong foundation for future conservation efforts.



<p>Starting point</p>	<p>Launched in response to increasing deforestation and the lack of accessible carbon offset mechanisms in Portugal, Carbono Biodiverso was designed to leverage the economic value of ecosystem services to fund conservation and restoration activities.</p> <p>This project followed the “Green Giants” project funded by the Municipality of Lousada, where VERDE’s president was able to map all the big trees in Lousada and measure their ecological value.</p>
<p>Detailed description</p>	<p>Carbono Biodiverso operates through partnerships between Guardians and Keepers. Guardians fund the preservation and restoration of Green Giants by offsetting their carbon emissions. Keepers, typically landowners or managers, commit to protecting these trees under 10-year contracts facilitated by VERDE. The program also invests in ecosystem restoration by planting native trees, managing invasive species, and creating biodiversity support structures such as shelters for fauna in the lands surrounding to the Green Giants.</p> <p>VERDE ensures partnerships with the Municipality to facilitate logistical support for the restoration actions and promotes volunteering actions to do so as well.</p> <p>The program's decentralized approach empowers local communities while offering organizations a tangible method to address their carbon footprint. Its activities are aligned with scientific best practices in ecosystem management and contribute to broader climate and biodiversity goals.</p>
<p>Impact</p>	
<p>Beneficiaries</p>	<p>Landowners (Keepers), who receive financial incentives for preserving trees; Individuals and organizations (Guardians), who offset their carbon footprint and support local conservation; Broader communities, who benefit from enhanced biodiversity, climate regulation, and ecosystem services.</p>
<p>Environmental results</p>	<p>As of October 2022, the program had compensated for over 300 tons of carbon. It secured the preservation of 26 Green Giants, planted nearly 8,000 native trees, and managed invasive species across over 9,500 square meters. These activities contribute to carbon sequestration, habitat restoration, and the enhancement of Portugal’s natural heritage.</p>
<p>Social results</p>	<p>In 2022, VERDE engaged 410 volunteers in multiple initiatives who contributed a total of 8,743 hours to various environmental</p>



	conservation projects such as tree planting, pond construction, invasive plant control, and habitat restoration. Additionally, 18 long-term volunteers from five nationalities participated in extended programs, and four corporate volunteering actions were held, involving 79 participants. These collective actions highlight VERDE's commitment to fostering community involvement and collaboration in preserving natural ecosystems.
Economical results	As of October 2022, the program had generated €45,000, with around 50% of it being directed to the payment of ecosystem services of the Green Giants, generating wealth for rural communities, 30% for planting and restoration actions, and 20% for Management.
Targeted SDGs	13, 17, 15
EU Green Deal	Biodiversity conservation, climate neutrality, and sustainable use of natural resources.
Learnings	
Challenges faced	<p>The program had to overcome challenges such as engaging landowners, ensuring long-term commitment, and raising sufficient funds to expand its reach. The complexities of measuring and verifying carbon offset impacts were also hurdles in its early stages.</p> <p>A key challenge lies in positioning the project and facilitating its expansion within Portugal's evolving framework for payments for ecosystem services, which is still under development.</p>
Lessons learned	<p>The initiative highlights the importance of linking financial incentives and sustainability to conservation and fostering community engagement for long-term success.</p> <p>Educating stakeholders and transparent communication are critical to building trust and participation, both because this solution is very innovative, and because the rural communities can be sensitive to engage around complex matters such carbon offsetting.</p>
Potential transfer	The model can be adapted to other regions facing deforestation and biodiversity loss, particularly in areas with underutilized mechanisms for monetizing ecosystem services.
Future actions	Future plans include expanding the program nationally and scaling up restoration activities. Additionally, the development of a comprehensive



	framework to accurately value carbon credits from individual trees is currently underway
Additional or useful information	
Internet links	https://www.verde-associacao.pt/en/carbono-biodiverso
Others	
1st prize AGIR ren - National Energy Networks Winner CA Always Sustainable Day Contest 2023 Winner +Plus Fund	





Mata de Vilar, Public forest as a open lab, Portugal



Characterization	
Type of action	Forest management, biodiversity, environmental education and community
Geographical scope	Local
Location	Vilar do Torno e Alentém, Lousada, Porto, Portugal
Time scale	2019 - Present
Organization in charge of the practice	Municipality of Lousada - Sector of Environmental Education and Nature Conservation
Type of organization	Public administration
Organization's brief description	The municipality of Lousada is a local administrative unit in Portugal, located in the Porto district, Northern region.
Contact person	Manuel Nunes, manuel.nunes@cm-lousada.pt
Description	
Summary	Mata de Vilar is a 14-hectare forest managed by Lousada Municipality, located in the heart of the Sousa Superior Local Protected Landscape, and the largest extension of continuous native forest in Lousada, made up of oak, beech and coniferous trees. Created at the beginning of the 20th century as a private property of the Feijó family, it is now the main recreational forestry facility in the municipality of Lousada.



	Its richness, uniqueness and management have earned it international certification as a Forest of High Conservation Value by the FSC®.
Goals	The Requalification of Mata de Vilar: from tourist enjoyment to sustainability, promoted by the Municipality of Lousada with the support of Turismo de Portugal, has as its main objectives the enhancement of the region's natural cultural heritage, the diversification and qualified complementing of the tourist offer, raising awareness and informing different audiences about nature conservation/sustainability issues, and the enhancement of the local social landscape and intergenerational dialogue, by linking tourism promotion with local communities.
Stakeholders	Schools; Young people; Volunteering programs; Adults; Families; Elderly; Companies; Land owners; ONG's; Cultural groups;
Policy context	Mata de Vilar project was a perfectly innovative, on a regional and even national scale. There are few locations in Portugal where an experience is available that combines scientific research and forest management with tourist exploration technology, and also with a personalized visitation program through scientific guides/monitors who explain and raise awareness of the values of sustainability and the protection of environmental values.
Social context	The project arises from a set of manifest needs verified in the Municipality of Lousada, particularly with regard to (i) provision of natural spaces suitable for visiting and receiving visitors, (ii) reduced availability of well-preserved ecosystems that allow enjoyment and contemplation of nature; natural resources, particularly in the context of sustainable tourism and environmental awareness among local communities, and a place where the Municipality could implement volunteering and citizen science programs.
Environment context	The requalification of Mata de Vilar was essential, within the scope of the Municipal Strategy for Sustainability, since the Lousada territory, since it presents small patches of native forest and small pockets of biodiversity, this forest as a green infrastructure and space dedicated to nature conservation and biodiversity improvement, it would become a more functional space from the point of view of ecological and social ecosystem services;
Starting point	The work plan focused on: <ul style="list-style-type: none">• Infrastructural actions, such as the construction of a reception and assistance center for visitors.• Aesthetic and biodiversity improvement actions.



	<ul style="list-style-type: none"> • Informative and environmental awareness support (APP, maps, flyers, Environmental Educational Service Brochure, a specific field guide with the animals and plant species); • Definition of walking routes and respective directional sign boards. • Creation of an accessible forestry trail for people in wheelchairs and blind people.
<p>Detailed description</p>	<p>Mata de Vilar, located in the heart of the Sousa Superior Protected Landscape, is the most emblematic green space in the municipality of Lousada, and is also its largest patch of native forest. Its uniqueness and the management model currently applied in the Forest have already earned it the international certificate of High Conservation Value Forest, by FSC®.</p> <p>The history of Mata de Vilar is closely linked to the Feijó family, a renowned family in the region. This forest marked the experiences and history of many generations of people from Lousada who saw it develop and worked in it. It was from 1923 onwards, that Mata assumed a true and decisive role as a family recreational space, without neglecting the important role it has always played in the agricultural economy of the farm and the Casa de Vilar, which is adjacent to it. This gives rise to a more aesthetic component combined with the deep respect and fascination for nature, which is still observable today in the collection of magnificent exotic specimens that are concentrated in the eastern part of the Forest, as well as in its main promenade. Rui Feijó is also responsible for the construction of the viewpoint, facing the Sousa River Valley, the paths lined with granite, the collection of benches covered in tiles and the stone tables, whose existence, despite having been used for decades, only scant traces survive.</p> <p>After centuries of changes to the territory, Mata de Vilar remains today as one of the last strongholds of native forest in the municipality. Recognizing the importance and wealth that such a space symbolizes in a fragmented territory, densely populated and occupied with intensive agriculture and forestry, the Municipality of Lousada acquired Mata de Vilar in 2008.</p> <p>This forest space is equipped with an Interpretation Center, laboratory, workshop, seed bank and educational nurseries, dedicated to the most diverse types of publics, as well as several trails, including an accessible forest trail.</p>



	<p>Regarding the environmental educational program, at this forest schools, families, and general public can do several activities and workshop from a list of 52 different activities, from literature, science, biodiversity, dead wood, ponds and water habitats, music and arts.</p> <p>The fauna list contains more than 70 species, highlighting the presence of some species of threatened bats, the red squirrel, the hornet's buzzard and the emerald dragonfly, a species protected at European level. In terms of flora, 112 species are catalogued, highlighting species with legal protection status such as the cork oak, gilthead, daffodil and holly.</p>
<p>Impact</p>	
<p>Beneficiaries</p>	<p>Local community, all kind of visitors from other municipalities, teachers, schools, environmental technicians, universities, forest managers, and others.</p>
<p>Environmental results</p>	<ul style="list-style-type: none"> • Construction of a pond for biodiversity / contemplative lake, taking advantage of a currently abandoned quarry; • Reactivation of a native river, currently dry and subject to water diversion, and promotion of the riparian gallery. • Removal of invasive alien species; • Creation of 5 new ponds for aquatic biodiversity; • Construction of fauna shelters, a hibernaculum, a sandarium (sand box) for solitary bees and wasps and several insect hotels; • Plantation activities with native shrub species and honey plants for pollinators; • 57 nesting boxes installed, and 11 bat shelters; • Improvement of apiary conditions; • Inventory of Fauna and Flora: 70 species of vertebrates, 423 species of invertebrates, +100 species of flora; • + 800m of dead wood fences;
<p>Social results</p>	<ul style="list-style-type: none"> • 4000 annual visitors; • 35 schools involved in environmental educational activities (all the schools in the municipality) • +30 visiting institutions annually • 53 different workshops and activities for schools, families and elderly; • 2 volunteers' programs (one for schools "Godfather of Green Giants" and other for elderly people "Monitorization of bird nests" • Program of classical concerts in the forest (on per season) free for public;

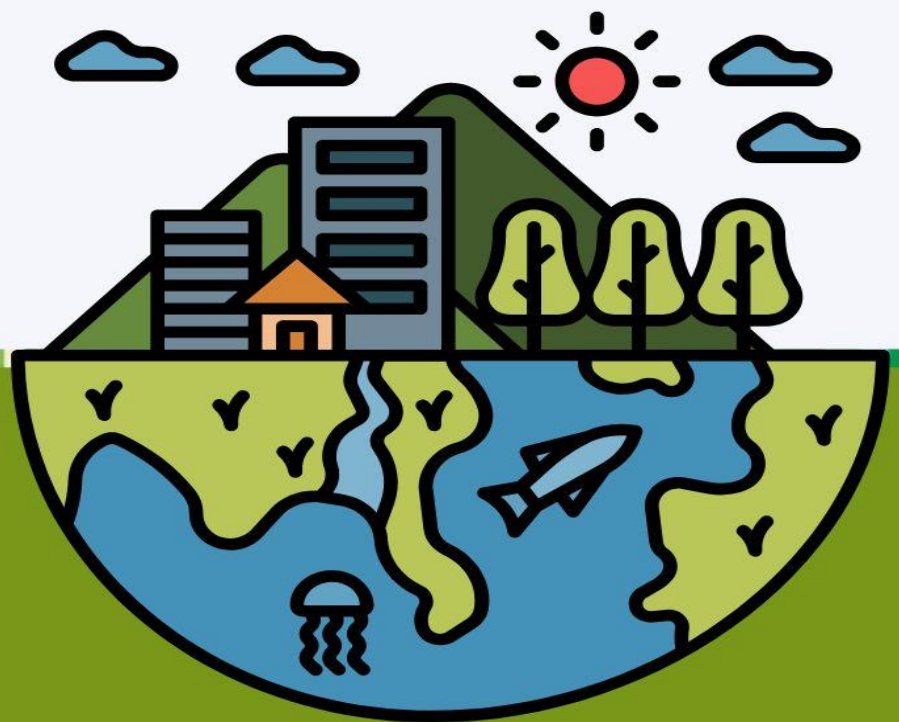


Targeted SDGs	4, 11, 13, 15, and 17
EU Green Deal	"Chapter" of the EU Green Deal that is tackled by this module
Learnings	
Challenges faced	<p>Making forest spaces compatible with nature tourism and the sustainability of the territory continues to be an important challenge. Likewise, it is not always easy to respond to all types of visit requests, with the protection of habitats, as it is still necessary to raise awareness among the community about the necessary balance between leisure and nature conservation.</p> <p>Mass tourism in natural areas is still a reality, so in Mata de Vilar the effort to avoid these situations is constant. Environmental education and scientific literacy in relation to forests and their importance is still scarce, which is why it is necessary to focus on more transmission of knowledge and practical activities, on site, that allow the community to perceive the importance of these habitats in their own quality of life.</p>
Lessons learned	<p>Importance of having sufficient environmental education technicians, as well as adequate training, capable of welcoming and promoting activities with all types of audiences.</p> <p>Create multipurpose and no single use spaces.</p> <p>To carry out ecological restoration and infrastructure construction, we need to choose technicians and professionals who know natural dynamics and have experience</p>
Potential to transfer	The work carried out in Mata de Vilar has always aimed to be pioneering to facilitate replication in other national and European forest that are managed by public domain, being perfectly transferable.
Future actions	<ul style="list-style-type: none"> • Continue to promote the involvement of the local community in valuing and protecting the natural values of this forest; • Create increasingly interesting programs and activities that focus on current topics, such as climate change and ecosystem services; • Continue to seek funds that allow the improvement of infrastructural and human conditions; • Increasingly reconcile tourist enjoyment with the protection of Nature; • Promote and enhance the natural regeneration of native species typical of this habitat; • Increase monitoring efforts for key groups of animals and plants, such as invertebrates and herbs;



Resources	
Human	One full time environmental educator and environmental service coordinator, and 3 technicians responsible for forest maintenance and activities and public support. During some months other colleagues from the Municipality came to Mata to do more activities and workshops. Some are employed directly and others as service providers.
Material / Logistics	One 4x4 truck; a set of 4 buildings that make up the Environmental Interpretation Center: WC, Workshop, Seed Bank (laboratory), changing rooms and the Interpretation Center with auditorium, office and WC. Field equipment and protective gear, for forest management activities. Teaching material, books, laboratory material
Duration of implementation phase	Two years of fieldwork and construction of infrastructure to receive public and schools, and in execution ever since.
Additional or useful information	
Internet links	https://www.sousasuperior.pt/destinations/mata-vilar/
Others	https://pt.fsc.org/pt-pt/newsfeed/fsc-portugal-apadrinha-11-gigantes-verdes-da-mata-de-vilar https://pt.fsc.org/pt-pt/newsfeed/semana-da-floresta-fsc-2023-obrigado

Land planning / Land use



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Municipality of Lousada's Sustainable Development Strategy, Portugal



Characterization	
Type of action	Land Management
Geographical scope	Local
Location	Lousada, Porto, Portugal
Time scale	2014-on going
Organization in charge of the practice	Municipality of Lousada - Sector of Environmental Education and Nature Conservation
Type of organization	Public administration
Organization's brief description	The municipality of Lousada is a local administrative unit in Portugal, located in the Porto district, Northern region.
Contact person	Manuel Nunes, manuel.nunes@cm-lousada.pt
Description	
Summary	The Municipal Plan for the Sustainability of Lousada was an unprecedented effort led by political will and academic knowledge. The region is today a laboratory of good practices in terms of environmental conservation and social engagement, being a national case study and the target of European awards.
Goals	<ul style="list-style-type: none"> • Stop local biodiversity loss.



	<ul style="list-style-type: none"> • Foster ecological literacy. • Engage the community in an environmental agenda to leverage territorial development.
Stakeholders	Schools; Young people; Volunteering programs; Adults; Families; Elderly; Companies; Land owners; ONG's; Cultural groups;
Policy context	At the time, the political executive's understanding of environmental management revolved around the traditional triad of water, sanitation, and waste . There was a noticeable absence of environmental sustainability policies, gaps in infrastructure resilience to address climate change, and a lack of scientific knowledge (Biodiversity, Forest management, Water systems, Sustainable agriculture, Peri-urban landscape management).
Social context	Despite the peri-rural context, society showed little connection with natural values/sensitivity to environmental issues. There was a lack of environmental literacy and a low level of active citizenship /community involvement in solving environmental problems.
Environment context	The region was heavily impacted by human intervention, with many degraded areas, watercourses with waste deposits, and a prevalence of invasive species in the landscape. There were small pockets of biodiversity threatened by development.
Starting point	<p>The work plan focused on :</p> <ul style="list-style-type: none"> • Scientific Research - Characterization and mapping of the local reality with integrated solutions for sustainable landscape management. • Environmental Education - Long-term locally designed environmental education programs for children, youth, adults, and seniors. • Social Involvement - Intervention projects designed with/for the local community. • Financial Management - Permanent needs vs. shortage of funds. • Infrastructure Actions - Territorial intervention for the recovery of degraded areas based on natural engineering.
Detailed description	Lousada's green revolution began quietly in 2014, when Manuel Nunes, Archaeologist, and professor with a great love for his land, recently elected councilor for the environment in Lousada, approached the University of Aveiro in search of academic knowledge that would structure something unprecedented in the country - the Municipal Plan for the sustainability of Lousada. Milene Matos, PhD in Biology with a





Master in Marketing and Digital Communication, led the effort, based on the five pillars of Research and Nature Conservation, Environmental Education and Scientific Literacy, Social Involvement, Infrastructural Efficiency and Internal Sustainability. She was surprised when the first survey of fauna and flora showed the existence of highly **threatened species** nuclei, something that the strong human presence in the territory, with an agricultural-industrial-rural matrix, did not allow to foresee. At the same time, efforts to raise **awareness** of the population began, with educational activities open to the public and the incorporation of books on local nature into the school reading plan.

The region is today a laboratory of good practices in terms of environmental conservation, being a **national case study** and the target of European distinctions, applying projects such as:

Biolousada- Environmental education program with the objective of involving citizens in valuing and protecting the territory's natural values, as you can only protect what is known

Lousada Ponds- Conservation and creation of new ponds and other aquatic environments in the municipality.

Plantar Lousada- Public reforestation actions and offer of native plants to the population

Bioschool - scientific education activities and environmental awareness in a school context, framed in the syllabus of the various disciplines.

Lucanus- municipal technical-scientific publication in the areas of Conservation, Management and Enhancement of Natural Resources.

Sustainable Waste - Program that gives discounts on the waste management fee the higher your recycling fee

Sustainable Lousada Fund - Financing grants for academic work to be implemented in Lousada

Lousada Jardins- inventory of the species of trees and shrubs that exist in the historic gardens of stately homes in the municipality.

Green Giants - Inventory and valuation of large trees and ecological value

Lousada River Guard - inspection and monitoring program of the ecological state of the rivers and streams of Lousada, through the adoption of its sections by the citizens

360° Bioschool Challenge - Return to schools the energy value saved compared to previous years

Casaninho- Placement of artificial nest boxes to promote biodiversity and mitigate conflicts through human interaction.

100% LED - Replacement of all LED street light bulbs

Cornelias - Free electric-bike sharing





	<p>Municipal network of micro reserves - Creation of mini-protected areas to ensure the connectivity of natural spaces and the mobility of fauna and flora</p> <p>Municipal regulation for the management of trees and natural spaces in the municipality of Lousada- Protection of the arboreal heritage of Lousada</p> <p>Although some of these projects pay for themselves for the savings they represent, for others a constant flow of external funding is needed, especially from applications to European environmental funds. A more cohesive village, with space for Nature and educated citizens and with a better quality of life, shows that these funds are definitely well invested.</p>
Impact	
Beneficiaries	Schools; Young people; Volunteering programs; Adults; Families; Elderly; Companies; Land owners; ONG's; Cultural groups; Tourists; General community, with highlight to students, families and elderly; Volunteers; Land owners;
Environmental results	<ul style="list-style-type: none"> • Creation of a local Protected Landscape with +1609 hectares • Inventory of Fauna and Flora: 557 species of plants and invertebrates have already been discovered, of which 62 are protected and 28 are endemic to Iberia • Inventory of trees with high ecological value: +7400 trees from +40 species • +200 nesting boxes installed; • +30km of water lines restored • Additional 2500m2 of blue surface in the municipality through the creation of ponds • +113,000 native plants planted • +70ha of terrestrial area restored • Reduction of approximately 3100 tons of CO2 per year through the improvement of public buildings and street lighting • -1600 tons of garbage in landfills in 4 years by recycling programs
Economical results	<ul style="list-style-type: none"> • Savings of +300,000 euros of nature restauration labor by volunteering programs • Savings up to 200,000 euros/year by improvement of water structure • Savings up to 700 000 euros/year by improvement of public buildings and street lighting
Targeted SDGs	14 of the 17, with highlights on 13, 15, 11 and 4.



EU Green Deal	Environment and oceans; Finance and regional development
Learnings	
Challenges faced	<p>Social involvement is always a challenge due to the human natural opposition to the unknown. It helps to start by engaging key sectors of the community, such as schools and established associative groups, to begin generating buzz around actions and spreading the message. Landowners and peers within the political committee are often the first to hinder disruptive ideas, not believing in the realization of plans - they only believe when they see it. It is important, therefore, to start with practical projects whose success is practically guaranteed, and/or showcase examples of best practices already validated in external contexts. Focus on credible and easily justifiable themes, avoiding (at least initially) issues that could be divisive.</p>
Lessons learned	<ul style="list-style-type: none"> • Never promote a project before it's on the ground/validated and running smoothly. • The community wants to be involved; we just have to give them the opportunity/create the most favorable conditions for it. • It's crucial to choose the right people to implement actions on the ground, ensuring that besides academic knowledge, they possess excellent human relationship qualities, with empathy, charisma, and friendliness. • When we want something new done well, we have to take charge, lead, and not leave it in the hands of middle management. • The process of raising awareness and social involvement is faster when people feel valued and have confidence in the projects. Therefore, it's important to ensure efforts with visible short-term results when involving the initial volunteers and to receive and listen to their feedback. • If we don't take care of our territory, the central power won't. • It's essential to use science as the foundation in structuring actions but also as an argument for their justification, in both internal and external communication. Opinions can be dismantled, facts cannot.
Potential transfer	to The work carried out in the environmental area in Lousada has always aimed to be pioneering to facilitate replication in other national and European regions, being perfectly transferable, as evidenced by the award mentioned at the end of this document.
Future actions	<ul style="list-style-type: none"> • To have 30% of the territory protected, following European guidelines;

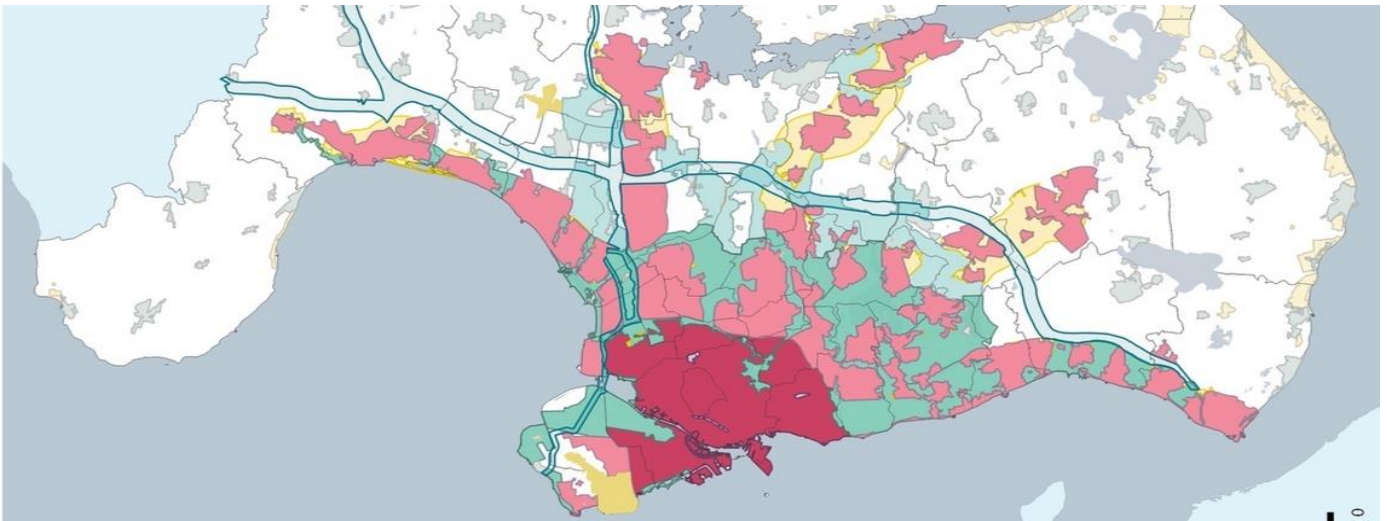


	<ul style="list-style-type: none"> • Consolidate what has already been accomplished; • Expand the network of micro-reserves across the territory; • Create or facilitate the creation of financial incentives for civil society to preserve nature, reinforcing the economic sustainability of these actions.
Resources	
Financial	Started at 50 thousand euros annually, and right now it's at roughly 500 thousand euros annually - which is only 3% of the municipal budget of 15 million euros.
Funding	60% from the municipal budget (+ logistical support), 10% from national applications and 30% from international applications
Human	It started with a counselor and a researcher from the University of Aveiro. Currently, there are 12 environmental conservation technicians , including biologists, forest engineers, geographers, and land management specialists, some employed directly and others as service providers .
Material Logistics	Two passenger vehicles and two work vans, various field equipment such as shovels and protective gear, and support from the municipality's general stock. The team works mostly on two separate public buildings (field work and environmental education focused), but has the option to manage their own schedule.
Duration of implementation phase	Two years of fieldwork to build the state of the art and outline the plan. In execution ever since.
Additional or useful information	
Internet links	https://www.cm-lousada.pt/p/educacao-ambiental https://www.facebook.com/LousadaAmbiente
Bibliography	Matos M & Nunes M (2021). Estratégia Municipal para Sustentabilidade – O projeto transformador do Município de Lousada. Lucanus – Revista de Ambiente e Sociedade, Volume V, Páginas 8-43.
Others	
2019 Transformative Action Award - https://cor.europa.eu/en/news/Pages/lousada-wins-2019-transformative-action-award.aspx	





The Copenhagen Finger Plan, Denmark



Characterization	
Type of action	Strategic urban and regional planning
Geographical scope	Regional
Location	Copenhagen metropolitan area, Denmark
Time scale	Initiated in 1947; ongoing
Organization in charge of the practice	Danish Town Planning Institute
Type of organization	Public administration
Organization's brief description	The Finger Plan was developed by the Danish Town Planning Institute in collaboration with regional and municipal authorities to shape the expansion of Copenhagen in a structured and sustainable manner, integrating transportation, housing, and green spaces into a cohesive urban framework.
Contact	db@byplanlab.dk
Description	
Summary	The Finger Plan, conceived in 1947, is one of the most influential urban planning models globally, designed to guide Copenhagen's growth. The plan organizes development along five distinct corridors, each



	<p>corresponding to commuter rail lines extending from the city's dense urban center. These corridors, or "fingers," are interspersed with "green wedges," designated areas for agriculture, recreation, and environmental preservation. This structure creates a hand-like shape when viewed from above, hence the name. Over time, the plan has evolved to incorporate additional "fingers," adapting to the city's expanding population and infrastructure needs while maintaining a balance between urbanization and ecological health.</p>
<p>Goals</p>	<p>The Finger Plan aims to:</p> <ul style="list-style-type: none"> • Promote efficient transportation: Concentrating development along rail corridors encourages public transit use and reduces car dependency. • Preserve green spaces: Maintain the ecological and recreational value of undeveloped areas between urban zones. • Support sustainable urban growth: Focus on compact, transit-oriented development to prevent urban sprawl. • Enhance quality of life: Provide residents with access to green spaces, efficient transport, and well-organized neighborhoods
<p>Policy context</p>	<p>The Finger Plan aligns with Denmark's national policies promoting green infrastructure, climate resilience, and sustainable urban growth. It reflects post-WWII priorities for structured development and remains a cornerstone of Copenhagen's regional planning.</p>
<p>Social context</p>	<p>The plan was introduced during a period of housing shortages and infrastructure challenges, addressing the need for well-organized urban expansion. It prioritizes equity by ensuring all residents have access to green spaces and efficient transit.</p>
<p>Starting point</p>	<p>In the 1940s, rapid population growth in Copenhagen necessitated a comprehensive strategy to guide urban expansion. The Finger Plan emerged as a forward-thinking approach to integrate public transport, housing, and green space into a cohesive framework.</p>
<p>Detailed description</p>	<p>The Copenhagen Finger Plan is a groundbreaking urban and regional planning framework designed in 1947 to ensure a structured, sustainable expansion of the Copenhagen metropolitan area. At its core, the plan envisions the city as a central hub or "palm," with five "fingers" extending outward along commuter rail corridors. These fingers correspond to the main suburban railway lines, creating a symbiotic relationship between public transportation and urban development.</p>



Key Features of the Plan:

- **Transit-Oriented Development**

Urban growth is concentrated along the five rail corridors, ensuring that residential, commercial, and industrial zones are highly accessible via public transportation. This approach reduces reliance on automobiles, minimizes traffic congestion, and lowers carbon emissions.

- **Green Wedges**

The areas between the urban fingers are intentionally left undeveloped to create “green wedges.” These zones are protected for agriculture, forests, recreational areas, and biodiversity conservation. Green wedges serve as natural barriers preventing urban sprawl, maintaining ecological health, and offering recreational opportunities for residents.

- **Integrated Land Use**

The fingers host a mix of land uses, including residential neighborhoods, business districts, and industrial areas, ensuring self-sufficiency within each corridor. This diversity supports the local economy, reduces commuting distances, and enhances liveability.

- **Expansion and Adaptation**

Over time, the plan has been updated to accommodate Copenhagen’s growth. A notable addition is the “Sixth Finger,” extending westward to include areas with increasing population and economic activity.

The plan has adapted to contemporary challenges, such as climate change, housing demand, and advancements in infrastructure technology.

- **Decentralized Nodes**

Along the corridors, decentralized urban centers have been developed. These nodes provide essential services, employment opportunities, and amenities within a short distance, reducing the need for travel to the city center. These nodes also distribute economic activity across the metropolitan area, fostering balanced regional development.

The starting phase of the project focused on developing the five fingers aligned with the existing suburban railway system. The rail infrastructure was expanded to include new stations and improved connectivity to suburban and rural areas.

As urban centers along the corridors matured, local governments implemented **zoning policies** to align with the broader Finger Plan framework. Green wedges, for example, are safeguarded by strict zoning laws, ensuring they remain undeveloped and retain their ecological value.



	<p>Collaboration between municipalities and the national government ensures consistent enforcement of these protections across the metropolitan region.</p> <p>Residents and local stakeholders were involved in consultations to shape the development of their respective corridors. This participatory approach fostered local buy-in and ensured that developments met the needs of the communities they served.</p>
Impact	
Beneficiaries	Residents, commuters, businesses, and tourists benefit from efficient transport and access to green spaces. Farmers and conservationists benefit from the protection of agricultural and natural areas.
Environmental results	<ul style="list-style-type: none"> • Preservation of biodiversity and ecosystems in green wedges. • Mitigation of urban heat islands through protected green spaces. • Sustainable land use practices.
Social results	<ul style="list-style-type: none"> • Improved quality of life through access to efficient transit and recreational spaces. • Reduced congestion and pollution due to decreased car dependency.
Economical results	<ul style="list-style-type: none"> • Concentrated development along transit corridors optimizes infrastructure investments. • Boosts in local economies through sustainable urbanization and tourism.
Targeted SDGs	11, 9, 15
EU Green Deal	Sustainable mobility, green infrastructure, and climate resilience
Learnings	
Challenges faced	The Copenhagen Finger Plan has had to adapt to numerous contemporary challenges since its inception. One of the most pressing has been the growing population in the metropolitan area, which has placed increasing demands on housing, infrastructure, and public services. Additionally, the impacts of climate change, including rising temperatures and unpredictable weather patterns, have necessitated further innovation in urban design and environmental preservation. Balancing the city's economic growth with the preservation of its iconic green wedges has been another persistent challenge, requiring strong governance and collaboration among stakeholders. These pressures



	have tested the resilience of the plan and highlighted the need for ongoing adaptation and refinement.
Lessons learned	The long-term success of the Copenhagen Finger Plan underscores the importance of integrated and strategic urban planning . It has shown that transit-oriented development is not only a means to improve mobility but also a key strategy for reducing carbon emissions and fostering sustainable growth. The protection of green spaces as part of urban planning has proven to be essential for maintaining ecological health, mitigating urban heat islands, and providing recreational benefits for residents. Moreover, the participatory approach to planning, which involved local stakeholders and residents, has been instrumental in securing public support and ensuring the plan's alignment with community needs.
Potential transfer	to The Copenhagen Finger Plan offers adaptable strategies for sustainable urban planning, focusing on transit-oriented development and green space preservation. Its integrated approach serves as a model for managing urban growth while benefiting communities and the environment.
Future actions	Looking ahead, the Copenhagen Finger Plan is set to incorporate advanced technologies and sustainable practices to address emerging challenges. Smart city technologies , such as data-driven traffic management and energy-efficient infrastructure, are expected to play a critical role in the plan's evolution. Additionally, renewable energy sources and climate adaptation strategies will be further integrated into the framework to ensure the city remains resilient in the face of environmental changes. The expansion of rail infrastructure and the promotion of sustainable mobility options will continue to be central priorities, ensuring that Copenhagen maintains its reputation as a global leader in urban sustainability.
Resources	
Financial	Significant investments in rail infrastructure and urban development, with ongoing maintenance costs for green spaces and transit systems.
Funding	National and regional government support, supplemented by public-private partnerships.
Human	Urban planners, engineers, ecologists, and policymakers are integral to the plan's execution.
Additional or useful information	



Bibliography	Gehl, J. (2010). <i>Cities for People</i> . Island Press. Hall, P., & Tewdwr-Jones, M. (2010). <i>Urban and Regional Planning</i> . Routledge. Stead, D., & Meijers, E. (2009). "Urban planning and the polycentric city." <i>Journal of Urban Studies</i> , 46(5): 1093-1114. Van den Berg, L., & Winden, W. (2002). <i>Cities in Transition: Globalization and Local Change</i> . Ashgate Publishing.
Others	
The Finger Plan has been internationally recognized as a model for sustainable urban planning and has influenced urban development strategies worldwide.	



Mobility



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Bicycle exam, Belgium



Characterization	
Type of action	Education, mobility
Geographical scope	Local
Location	Belgium, Antwerp, Zoersel
Time scale	Every school year (preparation for exam at school + two days for the exam)
Organization in charge of the practice	Municipality of Zoersel together with the six primary schools
Type of organization	Public Local government and public and private schools
Organization's brief description	The municipality of Zoersel is a local government and registration for the 22.557 inhabitants of Zoersel. Zoersel is located in the suburbs of the city of Antwerp in the Flanders region of Belgium. The department of mobility is responsible for all things public roads, traffic and road safety. From the six primary schools in Zoersel, three are public and three are private. All of them work together with the department of mobility for this project.
Contact person	Department of mobility Zoersel, mobiliteit@zoersel.be
Description	
Summary	In Zoersel, six primary schools participate in an annual bicycle exam organized by the municipality in collaboration with volunteers and the local police. This exam aims to improve cycling skills, road safety awareness, and confidence among young students. Each year, students



	<p>complete a designated route marked by checkpoints where volunteers and police officers assess their timing, cycling techniques, and adherence to road rules. These checkpoints provide children with real-time feedback on their cycling behavior, reinforcing good practices and identifying areas for improvement. Through this initiative, Zoersel hopes to create a safer, more confident generation of young cyclists. By supporting cycling from an early age, the municipality also encourages sustainable transport habits that can have long-term environmental and social benefits.</p>
<p>Goals</p>	<p>The main goal of the bicycle exam is to build children’s confidence and competence when cycling in real traffic conditions. By simulating road environments with checkpoints, students learn to navigate streets safely, adhere to traffic rules, and make better decisions on the road.</p> <p>A secondary goal is to reduce the likelihood of accidents involving young cyclists by reinforcing safe practices. This initiative also fosters a community that values cycling as an accessible, safe mode of transport.</p> <p>Long-term, the municipality aims to support sustainable transport by instilling cycling as a preferred mode of travel among young people. The exam serves as a proactive approach to developing a cycling-friendly community, aligned with Zoersel's broader environmental and safety goals.</p>
<p>Stakeholders</p>	<p>Key stakeholders include the students participating in the exam, their parents, school administrators, teachers, local volunteers, and the police.</p> <p>The police play a crucial role in ensuring the exam is conducted safely, providing valuable guidance on road safety. Volunteers, often community members, support logistics and supervision at checkpoints, which helps build a sense of community around the initiative. Parents and teachers are also stakeholders, as they support students’ practice and learning for the exam. The municipality of Zoersel is a central stakeholder, organizing and funding the exam, which aligns with its broader objectives of promoting safe and sustainable transport.</p>
<p>Policy context</p>	<p>The bicycle exam aligns with Zoersel’s policies on sustainable mobility, traffic safety, and youth development. Local policies promote cycling as a preferred mode of transport, particularly for school-age children, to reduce traffic congestion and emissions. National road safety policies encourage educational programs for young cyclists, reinforcing the importance of such initiatives in municipal planning. Additionally,</p>



	<p>Zoersel's support for the bicycle exam ties into broader regional and national goals to foster safe, eco-friendly, and efficient transportation networks. By collaborating with the police, schools, and community groups, the municipality can effectively integrate this program with its ongoing traffic safety efforts, creating a policy foundation that encourages sustainable and safe transport for future generations.</p>
Social context	<p>The bicycle exam fits well within Zoersel's community-oriented culture, where safety and well-being are key priorities. Cycling is a popular means of transport and recreation in the area, so parents and community members generally support initiatives that enhance children's cycling skills. Furthermore, the municipality's commitment to building cycling confidence in young residents aligns with a wider cultural appreciation for active, outdoor lifestyles. Through the exam, students gain a sense of achievement and confidence in their ability to navigate streets safely, fostering independence and responsibility. Socially, this initiative strengthens community ties as volunteers, parents, and local organizations collaborate to make the program a success.</p>
Environment context	<p>Promoting cycling through the bicycle exam has significant environmental benefits. By teaching children to cycle confidently, Zoersel encourages a shift from car travel to cycling, especially for short trips. This transition can reduce greenhouse gas emissions, lessen air pollution, and lower urban noise levels, improving the municipality's environmental quality. With students more likely to cycle to school as they gain confidence, the initiative also supports goals to reduce traffic congestion around schools, contributing to safer, healthier environments. By investing in cycling from a young age, Zoersel aligns with its broader environmental goals of promoting eco-friendly transport and fostering a greener, more sustainable community.</p>
Starting point	<p>The bicycle exam initiative began with the municipality identifying a need to improve children's cycling skills for safer navigation in daily traffic. Recognizing that road safety is essential, particularly for young cyclists, Zoersel coordinated with local schools, police, and community groups to design the program. Initial consultations with these stakeholders helped outline a safe, practical route that includes key skills checkpoints for assessing students' cycling proficiency. Early support from the community, particularly parents and school staff, was essential to the program's success. By incorporating checkpoints monitored by volunteers and police, the municipality was able to create a structured, engaging, and educational experience for students.</p>



Detailed description

The bicycle exam in Zoersel is an annual initiative organized by the municipality in collaboration with six local primary schools, volunteers, and the local police. This project aims to enhance the cycling skills, road safety awareness, and confidence of young cyclists. By teaching children how to navigate traffic safely at a young age, the municipality contributes to a safer and more sustainable community. The initiative aligns with Zoersel's broader policies on mobility, sustainability, and youth development.

The bicycle exam is coordinated by Zoersel's mobility department in close cooperation with the six primary schools in the municipality (three public and three private). Volunteers and the local police play essential roles. The police provide expertise in traffic safety and ensure the exam is conducted safely and in compliance with regulations. Volunteers, often parents and community members, assist with logistics and oversee checkpoints along the route.

Preparation for the bicycle exam begins at the start of the school year. Schools receive an overview of the program and a training guide developed by the mobility department. Students practice traffic rules and cycling techniques in class and during outdoor sessions on designated routes.

Practical Details of the Bicycle Exam

The bicycle exam takes place over two days and includes a route through the municipality. The route is carefully designed to expose students to various traffic situations, such as intersections, bike paths, and pedestrian crossings. Along the route, checkpoints are staffed by volunteers and police officers who assess students based on the following criteria:

- **Cycling skills:** Proper use of the bicycle, including signaling and environmental awareness.
- **Traffic rules:** Adherence to traffic signs, right-of-way rules, and other important regulations.
- **Safety behavior:** Helmet use, alertness, and correct road positioning.

At each checkpoint, children receive immediate feedback on their performance, helping them learn from any mistakes. Results are later discussed with students and their parents, providing an opportunity for further improvement. After the exam, participants receive a report summarizing their performance. Children who successfully complete all components receive a cycling certificate. This serves not only as



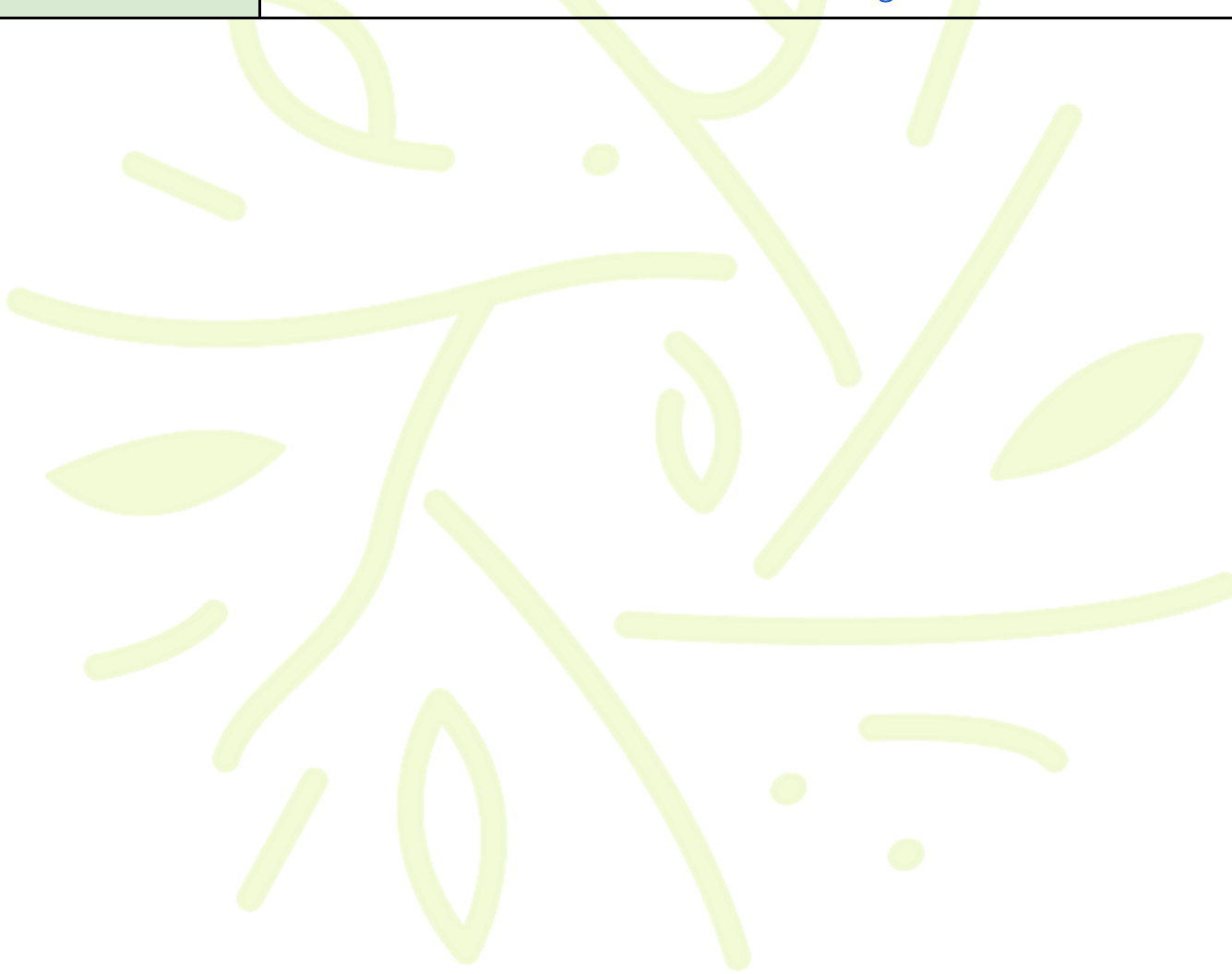
	recognition of their skills but also as motivation to use their bicycles more often.
Impact	
Beneficiaries	Children of the third grade of primary school
Environmental results	By teaching kids how to ride safely and confidently, we encourage them to choose bicycles as their primary mode of transport. This shift can lead to a reduction in car usage, which in turn decreases greenhouse gas emissions and air pollution.
Social results	<ol style="list-style-type: none"> 1. Safer roads: Educating young cyclists contributes to fewer traffic incidents. 2. Improved environmental quality: Encouraging cycling over car use reduces greenhouse gas emissions. 3. Stronger community bonds: Collaboration between schools, parents, volunteers, and the municipality strengthens social cohesion. 4. Increased independence for children: Children gain the skills to participate safely and independently in traffic.
Targeted SDGs	3, 4, 10, 11, 13
EU Green Deal	<ol style="list-style-type: none"> 1. Accelerating the shift to sustainable and smart mobility 2. Increasing the EU's climate ambition for 2030 and 2050 3. Leave no one behind (just transition) 4. A zero-pollution ambition for a toxic-free environment
Learnings	
Challenges faced	One of the main challenges in organizing the bicycle exam in Zoersel is recruiting enough volunteers to staff checkpoints and supervise students effectively. Since the program relies heavily on community volunteers and the time of local officials, managing these resources has proven to be demanding. Finding enough willing participants each year requires significant effort, and some volunteers are hesitant to commit due to the time and responsibility involved. Additionally, the initiative places a considerable demand on municipal staff, who must coordinate logistics, monitor safety, and handle any last-minute changes. Weather conditions can also affect the smooth running of the event, as rain or cold temperatures may cause delays or affect student attendance. Despite these challenges, the program has been a success, but it requires continued dedication from staff and the community. Streamlining processes to reduce dependency on large numbers of



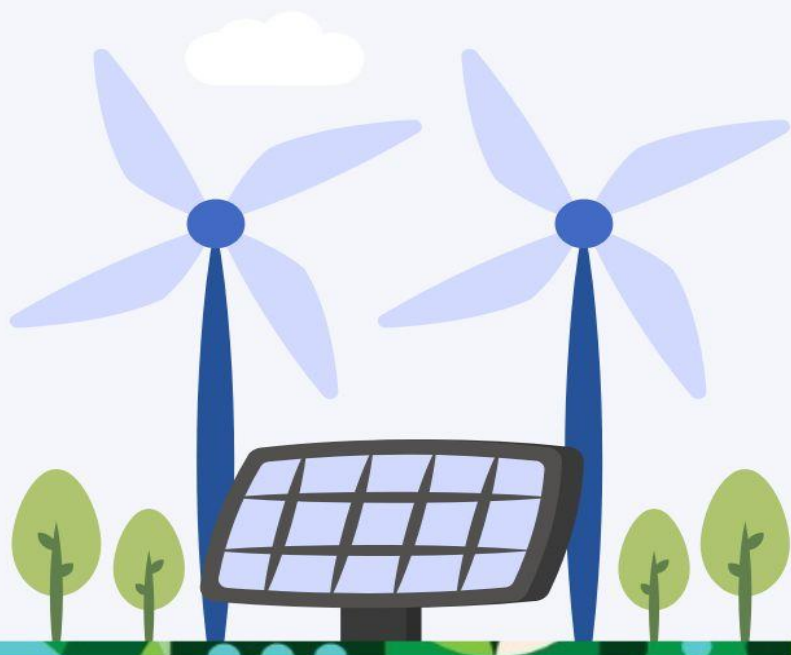
	<p>volunteers and maximizing resources could help alleviate some of these challenges in future implementations.</p>
<p>Lessons learned</p>	<p>A key lesson from the bicycle exam initiative in Zoersel is the importance of flexibility and adaptability in event planning. Initially, volunteer recruitment was challenging, but the municipality learned that proactive communication and clear instructions about volunteer roles help ease concerns. Additionally, engaging parents and community members early and explaining the long-term benefits of safer cycling habits for children encouraged more people to participate. Another lesson was that timing is crucial; organizing the event during favorable weather seasons and providing alternative dates or indoor cycling practice sessions can improve attendance and volunteer commitment. The municipality also found that involving local schools more deeply in preparation—such as having teachers reinforce cycling safety lessons in class—eased the pressure on event day. Finally, Zoersel realized that allowing students to take a trial run or participate in a mini-exam at school before the actual exam built confidence and reduced nervousness, making the experience more enjoyable and beneficial for the children.</p>
<p>Potential transfer</p>	<p>to The bicycle exam program in Zoersel is highly transferable to other schools and communities, given its straightforward setup and the significant safety and confidence benefits it provides to young cyclists. The key elements—designating a safe cycling route, staffing checkpoints, and collaborating with local schools, volunteers, and police—can be easily replicated. Schools and municipalities can adopt this model to create similar exams that meet the specific needs of their students. By focusing on essential skills and building community support, other towns could establish bicycle exams tailored to their unique traffic conditions and student demographics. Additionally, the positive outcomes, such as increased cycling safety and confidence, are universally relevant, making this program attractive to any community aiming to promote sustainable transport and road safety. Offering resources, like volunteer training guides and template communication materials, could further ease the transfer of this model to other regions.</p>
<p>Future actions</p>	<p>Moving forward, Zoersel plans to expand the bicycle exam program and make it more efficient. This includes finding ways to streamline volunteer management by establishing a network of recurring volunteers or considering small incentives to boost participation. Additionally, the municipality will explore digital solutions for recording checkpoint data to minimize manual tasks for volunteers and officials. There is also an interest in working more closely with schools to</p>



	<p>integrate cycling safety education into the curriculum, so students receive more frequent training throughout the year, not just on exam day. Zoersel will consider increasing partnerships with local businesses and community organizations to support the program, either through sponsorship or by providing volunteers. The municipality also aims to collect data on the long-term impact of the exam, such as increased cycling to school and decreased accident rates, to guide further improvements and secure additional support.</p>
Additional or useful information	
Internet links	<p>Website: fietsexamenroutes gemeente & ocmw Zoersel Routes: kaart fietsexamenroutes gemeente & ocmw Zoersel Manual (dutch): 484029-VSV-GFE-Handleiding-GFE 2020-2021.indd</p>



Energy



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Collective community renovation project “Bloemenwijk”, Belgium



Characterization	
Type of action	Energy retrofit
Geographical scope	Local
Location	Belgium, Antwerp, Zoersel
Time scale	december 2022 -ongoing
Organization in charge of the practice	climate team municipality of Zoersel and VZW Klimaatwerf
Type of organization	Public: local government (Zoersel) private NGO (Klimaatwerf)
Organization’s brief description	The municipality of Zoersel is a local government and registration for the 22.557 inhabitants of Zoersel. VZW Klimaatwerf is an NGO who was founded in 2023. They originate from the cooperation between ZuidtrtAnt and Zonnewind, both energy cooperatives active in the municipalities surrounding Antwerp city. Klimaatwerf is responsible for projects involving climate, energy, circular economy and education. They organize information sessions, group purchases and individual consulting and support for citizens.
Contact person	Elise Goorden, climate expert Zoersel elise.goorden@zoersel.be , klimaat@zoersel.be
Description	
Summary	The project zone is a neighbourhood called “Bloemenwijk” in Halle, Zoersel. It consists of mostly freestanding estate homes built in the



	<p>seventies. A lot of opportunities for energy retrofit are present and the homeowners on average have sufficient funds to renovate. To stimulate renovation over the entire neighbourhood, the municipality cooperates with Zonnewind, ZuidtrAnt and Klimaatwerf in this project. Residents are informed about their possibilities. Klimaatwerf provides information sessions, group purchases and individual consulting and support.</p> <p>A few neighbourhoods volunteers are schooled to become “EnerGuys and EnerGittes”. They can be called upon to come over to a neighbors house and analyze their energy bill. They can give some tips and tricks and help the homeowner proceed to next steps, when bigger measures are in order. In this case the experts of Klimaatwerf will continue the coaching. They make an Energy Performance Certificate (EPC) for the home. Which lists possible measures like renovation steps or solar panel installation. Next the experts from Klimaatwerf help the homeowners find a contractor. This way citizens are relieved of the burden of figuring this out themselves and they know the contractor is reliable.</p>
<p>Goals</p>	<p>The overall goal is to lower climate impact from the citizens of Zoersel. Zoersel is committed to have a 55% reduction in CO2 emission by 2030 compared to 2015. Household energy use is a big source for CO2, lowering and decarbonizing it will have an enormous impact on the total amount of CO2 exhausted from living in Zoersel. One of the eight targets in the climate plan for Zoersel is building renovation, if all residences in Zoersel are implemented with roof insulation, wall insulation, and high-performance glazing, it results in a potential for energy savings of 20 681 ton CO2. A second target is renewable energy production. By focusing on the production of renewable energy, the dependence on fossil fuels decreases. The municipality actively encourages and facilitates citizens, businesses, and the tertiary sector to invest in this. A third relevant target is reaching a climate-conscious society.</p> <p>Zoersel signed the local energy and climate pact from Flanders (LEKP) committing to reaching 807.37kWp cooperative/participatory renewable energy projects and 497 collective renovations both by the end of 2030. The project anticipates to decrease the climate impact of the Bloemenwijk. To pursue energy-positive neighborhoods in the municipality that can serve as an example to mobilize citizens and companies to take energy-positive measures themselves as individuals or as a group</p>



	<p>We base the development of this energy-positive district on the principles of the Trias Energetica strategy in which we first try to reduce energy consumption, stimulate the use of sustainable energy and, as long as we are not fossil-free, use fossil energy as efficiently as possible.</p> <p>Overall, the goal is focusing on the circular principles in neighbourhood renovation, including various aspects of sustainable mobility and focusing on changing the behaviour of neighbourhood residents through information and awareness.</p>
<p>Stakeholders</p>	<p>Residents Bloemenwijk, municipality of Zoersel, Klimaatwerf, Zonnewind, ZuidtrAnt, REScoop Vlaanderen, Kamp C, RENOSEEC, EnergielD, Pandschap Antwerpen, Avanza, Fluvius, 100 Wijken platform, IGEAN</p>
<p>Policy context</p>	<p>International policy: The Fit for 55 package gives a set of legislative proposals for the reduction of 55% of GHG emissions by 2030. This package is designed to align EU policies with the climate goals set by the European Green Deal.</p> <p>Regional policy: The Flemish government announced the latest version of the Flemisch climate pact 2021-2030 (VEKP) in 2023. The VEKP aspires to reduce greenhouse gas emission with 40% by 2030 (compared to 2005). From this level a local pact was created the local energy and climate pact, which local governments could sign and expect financial support to reach the agreed upon goals.</p> <p>Local policy: Zoersel signed all three versions of the LEKP: LEKP 1.0 in 2021, LEKP 2.0 in 2022 and LEKP 2.1 in 2023. All three of these pacts commit to a retrofit approach on neighborhood level. Each pact holds certain objectives concerning an amount of renovations, renewable energy projects, energy communities and climate roundtables. All of these objectives are targeted in this project.</p>
<p>Social context</p>	<p>Community engagement and participation should be stimulated by using multiple communication channels and repeating the project message to the citizens over and over. Roundtables are organized at regular intervals to stimulate participation.</p>



	<p>Demographics of the Bloemenwijk neighbourhood: the inhabitants of the Bloemenwijk are on average older citizens with a decent capital. Their main thresholds for renovation are old age resulting in limited future prospects.</p> <p>Not a lot of cultural factors apply, yet most houses remain in the ownership of one family, increasing the sentimental value of the properties.</p> <p>Building trust is critical for project success. VZW Klimaatwerf is fairly new and not known among residents. Trust in the local authorities is limited to average.</p>
Environment context	<p>The environmental context is limited to the greening of public space. As part of the whole community approach, de-paving and greening is included for climate mitigation, but this is not the main purpose of the project.</p>
Starting point	<p>In 2021, the municipality signed the Local Energy and Climate Pact from the Flemish government, committing to achieve specific climate goals by 2030. One set of goals under this pact is termed “Enrich Your Neighbourhood,” which includes a target for collective retrofitting. This led to the search for a suitable neighbourhood for a collective project.</p> <p>A “Bouwmeesterscan” conducted in 2021 identified Bloemenwijk as the most promising area for neighbourhood retrofitting. The scan revealed that most buildings in Bloemenwijk were constructed before 1975, are open, and situated on relatively large plots. The report suggests that Bloemenwijk could serve as a model for other neighbourhoods, acting as a laboratory for retrofitting initiatives.</p> <p>Bloemenwijk comprises 28 streets, 1,163 houses, and had a population of 2,825 in 2021. At the project’s inception, there were 313 photovoltaic (PV) installations with a total capacity of 1,384 kWp. This project aims to enhance the neighbourhood’s energy efficiency and sustainability, setting a precedent for similar initiatives in other areas.</p> <p>By focusing on Bloemenwijk, the municipality hopes to demonstrate the benefits of collective retrofitting, encouraging other communities to adopt similar measures to meet climate goals.</p>
Detailed description	<p>The aim is to improve the quality and cost-effectiveness of renovations, help as many families as possible transition from fossil fuels to sustainable energy, and seek collective solutions for sustainable energy.</p>



This approach goes beyond just renovations, encompassing mobility, greening, and more, all on the path to creating a renewable energy community. The services offered by Klimaatwerf are separated into four initiatives called “renovatiewerf”, “zonnewerf” and “burenwerf”.

The Renovation Project provides assistance with renovating your home. Experts from Klimaatwerf will prepare an EPC certificate and a tailored step-by-step plan for your home. They will guide you through the process of requesting quotes for the necessary measures and will also oversee the work. At the end, a final EPC will be issued. Possible measures include roof, floor, and wall insulation, high-insulating glazing, heating and ventilation systems, solar boilers, heat pumps, and solar panels. The guidance is free, with only the cost of the EPC preparation (around €300) to be paid. This free guidance is made possible through a subsidy from Flanders.

How does it work?

First, homeowners register via the website or by phone. Then, the quote is signed, and the fee for the preparation of the EPC is paid. Next, an EPC expert visits the home to prepare a preliminary EPC and a personalized step-by-step plan. The following step is a phone consultation with a renovation coach, after which the step-by-step plan and the chosen measure(s) are signed.

After this, the experts from Klimaatwerf will guide the implementation of the measures by requesting and evaluating quotes, ensuring the homeowner is relieved of as much burden as possible. In the final step, the contractor will contact the homeowner to arrange the execution of the work. During these works, the renovation coach from Klimaatwerf will continue to monitor everything and assist with the delivery. At the end of the process, the final EPC will be prepared.

Group Purchase of Insulation

Every resident of Zoersel can participate in this group purchase. Klimaatwerf selects the supplier and secures a discount through bulk buying. This sets a fixed price for homeowners. The offer includes roof insulation, floor insulation, cavity wall insulation, basement ceiling insulation, and glazing.

Interested residents can register via the website. Klimaatwerf will then forward the details to the selected contractor(s). The contractor will visit the site and prepare a quote based on the required square meters and materials. After the quote is approved, the insulation will be installed, with Klimaatwerf overseeing the entire process.





Zonnewerf

Zonnewerf provides assistance with the purchase of solar panels for residents' roofs. The experts from Klimaatwerf offer independent advice, help in selecting a supplier, and ensure good pricing and quality control. They also follow up after installation to guarantee the quality of the PV installation. In addition to solar panels, Zonnewerf also assists with the purchase of a home battery. This guidance is completely free of charge.

Step 1: Homeowners register via the website or by phone, during which the household's energy consumption is recorded.

Step 2: A phone consultation with a Zonnewerf expert is conducted.

Step 3: The homeowner receives a personalized proposal from Zonnewerf based on their energy consumption and the orientation of their roof.

Step 4: An installer visits the home to prepare a quote, which must be approved by the homeowner's signature.

Final Step: The installation of the solar panels on the roof is carried out by the installer, with ongoing supervision from Zonnewerf experts to ensure quality.

The last initiative "Burenwerf" is a collective project customised for this neighborhood. This is the only part of the offer of Klimaatwerf that is not available to other Zoersel citizens.

- "Energuy" and "Energittes" are neighborhood helpers who are willing to lend a hand to their neighbors during the project. These ambassadors have been given the catchy names 'EnerGuy' and 'EnerGitte'. They help their neighbors with questions about their energy consumption and the initial steps of their renovation. They can register via www.zoersel.be/bloemenwijk.
- Together with the neighbors options for shared mobility are analysed. At time of writing only informative measures are carried out.
- Also in participation with neighbours depavement and greening possibilities are assessed.

Communication

The key factor to success for a project like this is communicating with the homeowners of the Bloemenwijk. Multiple tools were used to inform people: such as personalized letters, pancartes, social media, news articles, the municipality website, magazine and e-newsletter, word of mouth advertising and big banners in the streets. Using these



	<p>tools people were informed of the services offered by Klimaatwerf and some events happening in the context of the project. You can voluntarily apply for the e-newsletter, by filling in a form on Zoersel.be/bloemenwijk.</p> <p>Events and contact</p> <ul style="list-style-type: none"> • “Wijkloketten” (local counters) IGEAN, the intercommunal where Zoersel is a part of, has contact moments called “Energieke loket” (Energetic counter) where citizens can ask questions about energy, renovation, possible bonuses they can apply for... This moments are weekly and take place in the town hall of Zoersel (for more information see best practice “EnergieK huis” IGEAN”). A stand of the Energieke loket was created locally on three different spots in the neighbourhood during the day and in the evening. This way people could easily come ask all their questions and get to know the project. • Community meetings People are invited to city hall to talk about all things considering their district. These face to face moments offered a great opportunity to promote the project and invite people to ask questions or make suggestions. • Climate roundtables The neighbours are invited to table discussions about certain topics like shared mobility, greening, energy sharing... Putting people together around a table with an expert to inform them, answer their questions but also listen to suggestions, is a great way to get everyone involved. People get to share with each other their ideas and experiences, which also increases word of mouth effect and overall social cohesion.
Impact	
Beneficiaries	Residents of the Bloemenwijk, homeowners
Environmental results	After roundtable discussion it is concluded to implement as many trees next to the streets as possible. These trees will be placed next to the street in the public green zone. Almost every street in the neighborhood has enough space next to the road.
Social results	<p>A collective neighbourhood approach to energetic retrofitting can yield several positive social outcomes:</p> <ol style="list-style-type: none"> 1. Enhanced Community Engagement: By involving residents in the decision-making process, these projects foster a sense of



	<p>ownership and responsibility. This engagement can lead to stronger community bonds and increased civic pride.</p> <ol style="list-style-type: none"> 2. Social Cohesion: Working together on a common goal helps build trust and cooperation among neighbours. This can reduce social isolation and create a more supportive and connected community. 3. Educational Opportunities: Such projects often include educational components that inform residents about energy efficiency and sustainability. This knowledge can empower individuals to make more environmentally conscious decisions in their daily lives. 4. Economic Benefits: Collective retrofitting can lead to cost savings through shared resources and bulk purchasing. Additionally, it can create local jobs and stimulate the local economy. 5. Improved Quality of Life: Energy-efficient homes are more comfortable and healthier to live in. Retrofitting can reduce energy bills, making housing more affordable and improving the overall quality of life for residents. 6. Environmental Awareness: Participating in a collective retrofitting project can increase awareness of environmental issues and encourage more sustainable behaviours within the community. <p>These social benefits highlight the importance of community-led initiatives in achieving broader sustainability goals while also enhancing the social fabric of neighbourhoods.</p>
Economical results	<ol style="list-style-type: none"> 1. Cost Savings: By pooling resources and purchasing materials in bulk, communities can reduce the overall cost of retrofitting projects. This can make energy-efficient upgrades more affordable for individual homeowners. 2. Increased Property Values: Energy-efficient homes are often more attractive to buyers, which can increase property values in the neighbourhood. This can provide a financial return on investment for homeowners. 3. Job Creation: Retrofitting projects can create local jobs in construction, project management, and related fields. This can stimulate the local economy and provide employment opportunities for residents. 4. Energy Savings: Improved energy efficiency can lead to significant reductions in energy bills for homeowners. This can free up household income for other expenses, boosting the local economy.



	<p>5. Attracting Investment: Successful retrofitting projects can attract further investment into the community, including grants, subsidies, and private investments aimed at sustainable development¹.</p> <p>6. Economic Resilience: By reducing energy consumption and reliance on external energy sources, communities can become more economically resilient. This can help buffer against energy price fluctuations and supply disruptions¹.</p> <p>These economic benefits highlight the potential for collective retrofitting projects to not only improve energy efficiency but also enhance the economic well-being of communities.</p>
<p>Targeted SDGs</p>	<p>7,11,13,16</p>
<p>EU Green Deal</p>	<ol style="list-style-type: none"> 1. increasing the EU's climate ambition for 2030 and 2050 2. supplying clean, affordable and secure energy 3. building and renovating in an energy and resource efficient way 4. financing the transition 5. leave no one behind (just transition) <p>and marginally also:</p> <ol style="list-style-type: none"> 6. a zero pollution ambition for a toxic-free environment 7. accelerating the shift to sustainable and smart mobility
<p>Learnings</p>	
<p>Challenges faced</p>	<p>Multiple challenges arised during this project. Firstly, reaching people was a major hurdle. Despite using various communication channels like flyers, social media, and community meetings, it was difficult to engage a broad audience. Still some residents were either unaware of the project or did not have the time to participate. On the other hand some residents were annoyed by the amount of advertisement. So finding a balance in this aspect is hard.</p> <p>Secondly, convincing people to get involved was another challenge. It is hard to get feedback from the unreactive people. The ones who show up for events are already enthusiastic about the offer. But it is impossible to know what the people who ignore the invitations need to be convinced. Overcoming this skepticism required persistent efforts, including one-on-one conversations, transparent communication about the project's goals, and showcasing successful examples from neighbors who had measures done by means of Klimaatwerf.</p>



	<p>In the context of “Burenwerf” the possibility to have residents cooperate in an energy project of solar panels on the roof of the local school was assessed. A lot of technical problems surfaced. Such as the electric whirring of the school being outdated, the local grid not having enough capacity or the overall legal framework in which to share a solar panel installation over the participating residents. A solution for this last problem is working with the local citizen cooperative (for more information see best practice citizen cooperative).</p>
<p>Lessons learned</p>	<p>First of all this project resulted in an increase in in house knowledge about energetic retrofitting, groups purchases, energetic community challenges, district communication and citizen participation.</p> <p>We learned the importance of giving people a platform to voice opinions and give input on local policy. By giving everyone a chance to participate, implementing changes will experience less resistance. Lastly, the benefits of the community surface in this project. Word of mouth is stimulated by this approach and opportunities to solve other problems arise.</p>
<p>Potential transfer</p>	<p>to</p> <p>The know-how we learned from this project can be used to implement similar projects in other neighbourhoods. Especially similar types of neighbourhoods with similar residents. Even though the Zonnewerf, Isolatiwerf and Renovatiwerf were already accessible for the whole of Zoersel, the focus on a specific neighbourhood is necessary to get people involved. The specific projects resulting from Burenwerf and the Energuyts are only for the Bloemenwijk residents. This is why implementing this project in other neighbourhoods and contacting people locally will have the best effect.</p> <p>This practice is also used as an example for other municipalities in Flanders. The project was picked up by ABB (Agency for Home Affairs Flanders) to participate in an information platform “100 wijken platform” (100 districts platform). It was chosen as one of ten pioneers in the district approach for objectives noted in the LEKP.</p>
<p>Future actions</p>	<p>The project is still ongoing, with renovations and renewable energy installations continuing under the guidance of Klimaatwerf. One of the most significant initiatives is the installation of a large photovoltaic system on the roof of the school building, possibly complemented by a neighborhood battery to store and distribute the generated energy efficiently.</p>



	<p>In addition to these energy-focused actions, the project will also prioritize the greening and depaving of public spaces. A lot of the streets in the projectzone are wider than necessary, when public works on the sewerage system are performed, the streets will be replaced with narrower streets. This will not only enhance the aesthetic appeal of the neighborhood but also contribute to environmental sustainability by reducing heat islands and improving water management.</p> <p>Furthermore, the project team is exploring options for shared mobility solutions.</p>
Resources	
Financial	<p>80 000€ of total investment by municipality (self-funding and LEKP subsidies)</p> <p>This does not include investments made by residents and bonuses applied by higher governments</p>
Funding	<p>50% - Funded by Flanders under the Local Climate and Energy Pact</p> <p>50% - Self-funding municipality of Zoersel</p>
Human	<p>One climate expert from the municipality 10% full time, 4 experts from Klimaatwerf about 10% full time. Three Energuyts (neighborhood ambassadors) sporadically and some marginal input from other stakeholders.</p>
Material / Logistics	<p>Website, banners and metal frames, other communication material</p>
Duration of implementation phase	<p>9 months</p>
Additional or useful information	
Internet links	<p>Policy klimaatplan Microsoft Word - Klimaatplan Zoersel IGEAN 2030 LEKP 1.0 Een Lokaal Energie- en Klimaatpact tussen de Vlaams regering en de Vlaamse steden en gemeenten LEKP 2.0 Op naar een Lokaal energie- en klimaatpact 2.0 tussen de Vlaamse Regering en de Vlaamse lokale besturen LEKP 2.1 Versterking Lokaal Energie- en Klimaatpact 2.1 tussen de Vlaamse Regering en de Vlaamse lokale besturen</p> <p>Stakeholders REScoop Vlaanderen REScoop</p>



	<p>Kamp C Home - Kamp C RENOSEEC RenoseeC - Kennisplatform Renovatie EnergieID Home EnergieID Pandschap Antwerpen Hps Antwerpen - Het Pandschap Fluvius Onze diensten Fluvius 100 Wijken platform 100 Wijken Platform Vlaanderen.be</p> <p>Other links The Developer - Opinion - Community-led retrofit can deliver more than energy efficiency (thedeveloperlive.co.uk) AMS Institute - Collect your Retrofits (ams-institute.org) openlab-positive-energy-neighbourhoods 9 0.pdf (europa.eu) The Challenge of Existing Homes: Retrofitting for Dramatic Energy Savings BuildingGreen 100 Wijken Platform Vlaanderen.be</p>
Others	
Recognition: "100 Wijken Platform ABB 10 pioniers" 100 Wijken Platform Vlaanderen.be	





Solar panels by means of citizen cooperative, Belgium



Characterization	
Type of action	Renewable Energy
Geographical scope	Local
Location	Belgium, Antwerp
Time scale	2021 (delivery 14/10/2021)
Organization in charge of the practice	Zonnewind CV
Type of organization	Private citizen energy cooperative
Organization's brief description	<p>Zonnewind is a cooperative company active in the Voorkempen region of Flanders. Their goal is to organize activities that contribute to the following:</p> <ul style="list-style-type: none"> • Reducing CO₂ emissions • Promoting rational energy consumption • Locally generating renewable energy <p>They are a group of citizens concerned about the climate who collectively invest in renewable energy and energy efficiency projects. Cooperants are involved in decision making as well as financial input.</p>
Contact person	Thomas Ven, secretary general Zonnewind thomas.ven@zonnewind.org Elise Goorden, climate expert Zoersel, elise.goorden@zoersel.be
Description	
Summary	The administrative center ("Bethaniëhuis") on Handelslei 167 in Zoersel is a remarkable architectural gem. The installation of 194 solar panels



	<p>this summer marked the sustainable cherry on top. The installation is accomplished by energy cooperative Zonnewind by means of an ESCo model.</p> <p>It required extensive research and consultation with the building manager and the municipal government to arrive at the most suitable solution, taking into account roof stability and overall aesthetics. If you stand at the front of the building, the installation will be barely visible, preserving the cultural heritage value. However, when you enter the central patio, you'll see all the panels beautifully laid out on the three roofs.</p>
Goals	Reducing overall CO ₂ emissions from Zoersel citizens and public services by locally generating renewable solar energy, more specific for the Bethanië building (city hall/administrative building)
Stakeholders	<p>Contracting party: municipality of Zoersel</p> <p>Supplier: partners Ecopower, ZuidtrAnt, Zonnewind and Campina Energie (all cooperatives)</p> <p>Project owner: Zonnewind CV</p> <p>Order Writer: VEB (Vlaams Energie Bedrijf) (also supplier energy demand not supplied by installation)</p> <p>customer: ACCB nv (public private cooperation "Administratief en Cultureel Centrum Bethaniën", Building manager)</p> <p>Citizens of Zoersel</p> <p>Electricity network operator: fluvius (injection)</p>
Policy context	<p>The municipality of Zoersel has strategically decided to invest in climate-friendly infrastructure, specifically aiming to install as many solar panels as possible on public roofs. This initiative can be financed either through self-funding or via the ESCO model (Energy Service Company). This decision aligns with Zoersel's commitment to the Covenant of Mayors, which targets a 40% reduction in CO₂ emissions by 2030 compared to 2012 levels.</p> <p>The Energiedecreet outlines the regulatory framework for energy performance in buildings and the implementation of EU directives on renewable energy.</p> <p>The netbeheerder's injection tariff applies to the electricity injected into the grid by solar panel installations.</p> <p>As of May 2021, the subsidy rules for large PV installations in Flanders have changed, introducing a tender system for projects between 40 kW and 2 MW³.</p>



	<p>European Directive 2018/2001 (Article 22): This directive promotes the use of energy from renewable sources and mandates the involvement of local populations in planning renewable energy infrastructure.</p> <p>Decreet Lokaal Bestuur (Articles 40 and 41): This decree governs local administration and supports the integration of renewable energy projects within municipal governance.</p>
<p>Social context</p>	<p>Community Engagement: The installation of the solar panels is a result of collective action to address energy challenges. By involving local citizens in the project through Zonnewind, the initiative fosters local empowerment and greater community participation in sustainable energy efforts. Zonnewind operates with democratic governance, providing members with a say in its goals, investment strategies, and priorities.</p> <p>Participation and Local Empowerment: The project adheres to the principles of collective participation. The municipality supports direct involvement through citizen cooperatives that respect the ICA principles, encouraging citizens to invest in renewable energy projects and ensuring broad community support.</p> <p>Energy Transition Awareness: The project raises awareness about environmental justice by demonstrating the community's role in driving the energy transition.</p>
<p>Environment context</p>	<p>The environmental context of the solar panel installation project in Zoersel highlights the urgent need to address climate change by transitioning to renewable energy. As global energy demands rise, reducing carbon emissions from the energy sector is critical. Fossil fuels, the main energy source, contribute significantly to climate change. Solar energy offers a sustainable, low-carbon alternative that can help mitigate these impacts.</p> <p>Zoersel's commitment to reducing CO2 emissions by 40% by 2030, in line with the Covenant of Mayors, aligns with broader European climate goals. The solar panel installation on the Bethaniëhuis is a key step in achieving this objective, providing clean, local energy and reducing dependence on fossil fuels. This decentralized approach enhances energy security and sustainability.</p> <p>Energy cooperatives like Zonnewind are essential in facilitating this transition by enabling local communities to take ownership of renewable energy projects. The project empowers citizens through participation, creating a more inclusive and democratic energy system. The installation</p>



	<p>will reduce CO2 emissions by around 16.2 tons annually, contributing to improved air quality and a greener environment.</p> <p>In addition, solar energy supports the circular economy by using recyclable materials and reducing the need for fossil fuel extraction. This project exemplifies how local actions can drive global sustainability goals.</p>
Starting point	<p>The starting point for Zoersel's solar panel project can be traced back to a key decision made in February 2021. During this time, the municipal government of Zoersel decided to pursue the installation of photovoltaic (PV) panels as part of its broader strategy to transition to sustainable energy and reduce carbon emissions. The decision was driven by a growing recognition of the importance of renewable energy in tackling climate change and the municipality's commitment to meet the EU's climate goals.</p> <p>In February 2021, the local government approved the first steps toward the installation of solar panels on municipal buildings, specifically targeting the Bethaniëhuis, the administrative center of Zoersel. This decision marked the beginning of an ambitious effort to equip public buildings with renewable energy sources. By choosing to invest in solar energy, the municipality aimed to reduce its energy costs, promote sustainability, and set an example for local citizens and businesses.</p> <p>The initial decision laid the groundwork for the involvement of Zonnewind, a local citizen cooperative, which would oversee the installation through an Energy Service Company (ESCO) model. The project's approval in 2021 sparked a series of planning meetings, consultations, and evaluations that ultimately led to the installation of 194 solar panels in 2021, marking a significant milestone in Zoersel's commitment to sustainability.</p>
Detailed description	<p>The use of solar panels as part of a citizen cooperative model represents an innovative and impactful approach to renewable energy generation. This model empowers local communities to take ownership of their energy production while contributing to environmental sustainability, economic resilience, and social cohesion. In this case, the installation of solar panels at the administrative center in Zoersel, Belgium, via the energy cooperative Zonnewind provides a compelling example of how</p>



community-driven projects can address both local energy needs and global climate challenges.

1. Overview of the Project

The solar panel installation at the Bethaniëhuis, a historic administrative building located on Handelslei 167 in Zoersel, is a part of the municipality's broader initiative to reduce its carbon footprint. The project was initiated and managed by Zonnewind, a citizen energy cooperative active in the Voorkempen region of Flanders, with the goal of locally generating renewable energy while reducing CO2 emissions from public services and municipal buildings. The installation consists of 194 solar panels, which are strategically placed on the roofs of the building, ensuring minimal visual impact while maximizing energy production.

Zonnewind, which is a cooperative company, has established itself as a key player in advancing renewable energy projects in the region. The organization brings together a group of concerned citizens who invest collectively in renewable energy initiatives. These cooperants (members of the cooperative) are not only financially involved but also actively participate in the decision-making processes. The cooperative model ensures that benefits are shared locally, both in terms of clean energy and economic returns.

2. The Citizen Cooperative Model

Energy cooperatives like Zonnewind provide a unique model for local involvement in energy generation. The cooperative approach is rooted in the principles of democratic governance, shared ownership, and mutual benefit. Members of Zonnewind invest in renewable energy projects, such as the solar panel installation at Bethaniëhuis, and in return, they receive dividends based on the profits generated by the project. This model creates a direct link between citizens and the energy transition, allowing them to take responsibility for their energy sources while benefiting financially.

The cooperative model also provides an opportunity for citizens to become more conscious of their energy consumption and its environmental impact. By participating in a cooperative, members contribute to reducing their community's reliance on fossil fuels and play an active role in the shift towards renewable energy. This type of community-driven initiative aligns with broader sustainability goals, such





as reducing CO2 emissions, promoting local energy autonomy, and fostering environmental justice.

3. The Role of Zonnewind

Zonnewind is a key partner in the project, providing both technical expertise and financial investment. As a private citizen energy cooperative, Zonnewind has experience managing renewable energy projects and working with local governments and other cooperatives to implement sustainable solutions. In the case of the solar panel installation at Bethaniëhuis, Zonnewind took on the responsibility of overseeing the project's planning, financing, and execution.

One of the main challenges for Zonnewind was ensuring that the solar panel installation aligned with the building's architectural heritage while maintaining efficiency. Extensive consultation with the building manager and municipal authorities was required to identify the most suitable location for the panels. The final solution involved installing the panels in a way that minimized their visibility from the street, preserving the aesthetic and cultural value of the building. This delicate balance between sustainability and heritage preservation is a hallmark of Zonnewind's approach to energy projects.

Zonnewind's cooperative structure also allows it to reinvest profits from its energy projects back into further renewable energy initiatives. This reinvestment strengthens the cooperative and promotes the growth of sustainable energy infrastructure in the region.

4. The ESCo (Energy Service Company) Model

The installation of solar panels at the Bethaniëhuis follows an Energy Service Company (ESCO) model, which is a type of financing model for energy projects that reduces the financial risk for the local government or building owner. In an ESCo model, the cooperative or energy provider installs, operates, and maintains the energy system, while the client (in this case, the municipality of Zoersel) pays for the energy generated over time. This arrangement allows the building owner to benefit from clean energy without having to make an upfront investment.

The ESCo model is particularly beneficial for public sector projects, as it reduces the burden on taxpayers and allows local governments to invest in sustainability without the need for large capital expenditures. For Zonnewind, the ESCo model ensures that the solar panel project is



financially viable, with the cooperative recouping its investment through the sale of electricity to the municipality over the term of the contract.

5. Solar Panel Installation Process

The process of installing solar panels on the Bethaniëhuis involved several key steps:

- 1. Feasibility Study and Planning:** Zonnewind conducted a comprehensive feasibility study, assessing the roof's structural integrity, potential energy yield, and aesthetic considerations. The study ensured that the panels would be placed in an optimal location to generate the most energy while keeping in line with the building's historical significance.
- 2. Collaboration with Municipal Authorities:** Given the location of the solar panels on a public building, close collaboration with the municipality of Zoersel was essential. Municipal authorities, along with the building manager, reviewed various design proposals to find a solution that respected the cultural and historical context of the building.
- 3. Installation:** Once the planning phase was complete, the solar panels were installed on the building's roof. The installation process was carefully managed to minimize disruption to the daily operations of the municipal offices housed in the building.
- 4. Energy Production and Monitoring:** After the installation was completed, Zonnewind began monitoring the energy output of the solar panels. The system is expected to generate approximately 62,500 kWh of electricity annually, with 91% of this electricity being consumed directly within the building. The remaining energy is injected into the local grid, contributing to the community's renewable energy supply.
- 5. Maintenance and Management:** Zonnewind continues to oversee the operation and maintenance of the solar panels to ensure that they operate efficiently and generate the expected energy output. Regular maintenance ensures that the system





	<p>remains in good condition and can deliver clean energy for the long term.</p>
<p>Impact</p>	
<p>Environmental results</p>	<p>The solar panel installation at the Bethaniëhuis in Zoersel is expected to have a significant environmental impact. The system is projected to generate an annual output of 62,500 kWh, with 91% of the electricity being directly consumed within the building. This contribution not only supports the building's energy needs but also reduces reliance on fossil-fuel-based electricity from the grid, thus cutting carbon emissions.</p> <p>The expected power capacity of the installation is 80 kWp, and the environmental benefits are substantial, with an estimated CO2 reduction of approximately 16.2 tons per year. This reduction represents a significant contribution to Zoersel's climate goals, especially in the context of the municipality's aim to reduce CO2 emissions by 40% by 2030. The project showcases how renewable energy projects can contribute to mitigating climate change by reducing greenhouse gas emissions and fostering a greener, more sustainable energy system. Additionally, the local production of renewable energy promotes energy security and reduces dependency on imported energy sources, which is vital for the region's long-term sustainability.</p> <p>By shifting to renewable energy, the project not only aids in environmental protection but also demonstrates the potential of community-driven energy models to make a meaningful impact on climate change.</p>
<p>Social results</p>	<p>One of the key social impacts of the solar panel project is the increased community involvement in local energy initiatives. Zonnewind, the citizen cooperative behind the project, provides local citizens with the opportunity to invest in renewable energy and benefit from its financial returns. Members of Zonnewind are able to participate in the decision-making processes of the cooperative, which ensures a democratic and inclusive approach to energy generation.</p> <p>The installation of the solar panels at the Bethaniëhuis also serves as a powerful example of community-driven environmental action. Local residents and businesses benefit from the reduced energy costs, and the project strengthens the sense of shared responsibility for tackling</p>



	<p>climate change. The involvement of the local community in energy generation not only increases awareness of renewable energy but also fosters a stronger connection between citizens and their energy systems.</p> <p>Moreover, the project provides an educational opportunity for the community, raising awareness about renewable energy and climate change. By witnessing the positive impact of the installation, citizens may be inspired to take similar actions in their own homes or businesses, leading to broader community participation in the energy transition.</p>
Economical results	<p>The economic impact of the solar panel installation on the Bethaniëhuis is multifaceted, benefiting both Zonnewind and the municipality of Zoersel (ACCB). For Zonnewind, the return on investment comes primarily through the sale of green certificates and the revenue from the electricity generated by the solar panels. Zonnewind receives payments from ACCB for the energy supplied, as well as compensation for any excess energy that is injected into the local grid.</p> <p>The cooperative's business model ensures that Zonnewind remains financially viable, with a steady stream of income from energy sales. Furthermore, Zonnewind's members benefit from dividends based on the profits generated by the installation, with a projected return of 3% per year. This creates an additional incentive for local citizens to support renewable energy projects, as they can both contribute to environmental sustainability and receive financial returns from their investment.</p> <p>For ACCB, the installation offers access to green energy without the need to make a large upfront investment. This allows the municipality to reduce its reliance on conventional energy sources while keeping costs predictable and stable. The municipality also benefits from long-term energy savings, as the cost of renewable energy tends to be more stable compared to fossil-fuel-based energy prices. After 10 years, ACCB will take ownership of the installation, which further enhances its financial and operational autonomy.</p>
Targeted SDGs	7, 8, 9, 11, 12, 13, 15 and 17
EU Green Deal	<ol style="list-style-type: none"> 1. increasing the EU's climate ambition for 2030 and 2050 2. supplying clean, affordable, secure energy 3. financing the transformation/transition



Learnings	
<p>Challenges faced</p>	<p>The project faced several challenges during its planning and implementation phases, the most notable being the disagreement between the local government and some stakeholders regarding the financing model. There was initial resistance to using the Energy Service Company (ESCO) model, as some members of the municipality were more inclined toward self-financing the installation. This difference in approach led to prolonged discussions and required careful negotiation to align all parties on the best path forward.</p> <p>Another challenge was the balancing act between the need for energy production and the preservation of the building's historical and aesthetic value. The Bethaniëhuis is a heritage building, and integrating modern solar technology while respecting its architectural integrity was a delicate task. Extensive consultations with building experts, local authorities, and heritage organizations were required to find a suitable solution that would not compromise the building's cultural value.</p> <p>Finally, there was the challenge of ensuring that the project remained financially viable in the long term. The ESCo model meant that Zonnewind had to guarantee a consistent energy output, requiring accurate forecasting and monitoring systems to ensure the system's efficiency.</p>
<p>Lessons learned</p>	<p>[Several important lessons were learned from the solar panel installation project:</p> <ol style="list-style-type: none"> 1. Stakeholder Engagement is Key: Early and ongoing engagement with all stakeholders, including local government, building managers, and community members, is crucial for the success of community-driven projects. By involving stakeholders from the outset, Zonnewind was able to address concerns and align all parties on common goals. 2. Balancing Heritage and Sustainability: Projects involving heritage buildings require careful planning and consultation to ensure that modern renewable energy solutions do not detract from cultural or architectural value. Flexibility and creative solutions are necessary to meet both environmental and preservation objectives. 3. Effective Financial Planning: The ESCo model requires careful financial planning to ensure the viability of the project. Accurate forecasting of energy production and consumption, as well as



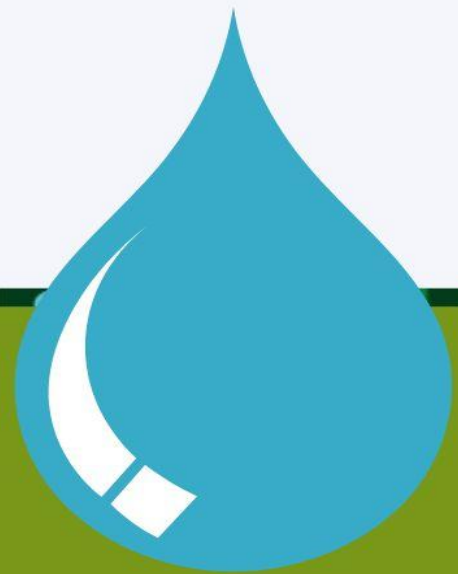
	<p>regular monitoring of the system’s performance, are essential to maintain the financial sustainability of the project.</p> <p>4. Community Empowerment Works: The cooperative model successfully empowered local citizens by giving them a direct role in the energy transition. By participating in the project, community members not only contributed to environmental goals but also received financial benefits, demonstrating the potential of citizen-led energy solutions.</p>
<p>Potential to transfer</p>	<p>The success of the solar panel installation in Zoersel presents significant potential for replication in other municipalities and regions. The model used by Zonnewind, combining the ESCo financing structure with a citizen cooperative approach, can be applied to other public buildings, such as schools, hospitals, and administrative centers, across Belgium and beyond. The cooperative model offers a flexible and scalable approach that can adapt to different local contexts and energy needs.</p> <p>Other municipalities with limited financial resources or interest in self-financing can benefit from this model, which allows for sustainable energy solutions without the need for large upfront investments. The project also serves as an example of how local governments can collaborate with citizen cooperatives to achieve their climate goals, contributing to the broader energy transition and fostering community involvement in environmental initiatives.</p> <p>In addition, the success of the project could inspire similar collaborations between energy cooperatives and local businesses, enabling the private sector to play a role in the energy transition. The model’s adaptability and its focus on local ownership and control of energy resources make it a promising model for future sustainable energy projects.</p>
<p>Future actions</p>	<p>Looking forward, Zonnewind and the municipality of Zoersel are committed to expanding their renewable energy initiatives. The successful solar panel installation is just the first step in a broader strategy to promote sustainability across the municipality. Future actions may include the installation of additional solar panels on other municipal buildings, as well as the exploration of other renewable energy solutions, such as wind or geothermal energy.</p> <p>Zonnewind plans to increase its membership base and expand its portfolio of renewable energy projects. By engaging more citizens in the</p>



	<p>cooperative, Zonnewind hopes to increase local participation in the energy transition and promote greater awareness of environmental issues. The cooperative will also work to improve the efficiency of its projects by integrating new technologies and exploring ways to reduce costs, such as energy storage systems or smart grids.</p> <p>Additionally, Zonnewind will continue to advocate for policies that support renewable energy adoption, both at the local and national levels. This includes engaging with policymakers to ensure that the regulatory environment remains conducive to the growth of energy cooperatives and the broader renewable energy sector.</p> <p>By continuing to build on the success of the Bethaniëhuis project, Zonnewind aims to make a lasting impact on the energy landscape in Flanders and beyond, contributing to the EU's climate goals and driving the transition to a sustainable, low-carbon future.</p>
Resources	
Financial	<p>De beslissing heeft geen rechtstreekse budgettaire weerslag 2 million € of total investment €200/kWh+ BTW + administrative compensation VEB indexering</p>
Human	<p>Two full time environmental technicians and one environmental educator.</p>
Material Logistics	<p>/ One 4x4 pickup truck; 5 ton of concrete, renting a 30 ton backhoe, etc 108 panelen op het schuine patiodak en 80 panelen op het leien dak achteraan</p>
Additional or useful information	
Internet links	<p>Zonnepanelen op dak van administratief centrum Zoersel - Zonnewind Citizen Cooperatives Covenant of Mayors - Europe (europa.eu) Overzicht energiecoöperaties in Vlaanderen Vlaanderen.be</p>



Water management



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Recovery and management of reservoir in Soto del Real, Spain



Characterization	
Type of action	Water management
Geographical scope	Local
Location	Soto del Real, Madrid
Time scale	2016 -on going
Organisation in charge of the practice	Soto del Real Town Hall, Madrid
Type of organisation	Public (municipal government)
Organization's brief description	The municipality of Soto del Real is a large village 42 km north of the city of Madrid, at the foot of the mountains of the Sierra de Guadarrama. The population is almost 10,000 people that becomes 20,000+ in the summer and some weekends due to the abundance of holiday residences.
Contact person	Ignacio García Castañares ngarcia@ayto-sotodelreal.es
Description	
Summary	The Town Hall put in motion an analysis to determine the state of the water collection, storage, distribution and sewerage network, with emphasis on the deficiencies in the collection, as the pipes were deemed to be in poor condition. A public consultation was developed to determine what Water Management Model best suited the residents of the village. That process gave the Town Hall the mandate to recover control of the reservoir, located in the municipality, at the foot of the



	mountains. At the time of the consultation, the management of the reservoir was held by an external water company.
Goals	Involve the residents in the decision-making process and improve the management of the water collection, storage, distribution and sewerage network.
Stakeholders	Residents of Soto del Real, the water company, the river basin water authority and the regional government.
Policy context	The consultation was an election promise that saw a change of local government. The new government recognised this improvement in the collection and use of water as key to the consolidation of the socialist programme for the legislature. Other elements regarding water management (distribution and sewerage, water rates and repairs) were built into the plan to make the management of water more sustainable and beneficial for the municipality.
Social context	The technical and economic analysis was presented to the general public and the public consultancy set up to decide on the model of the management of water in the municipality that the residents wanted.
Environment context	After more than 40 years of neglect of the infrastructure of the water collection and distribution, a large investment was considered necessary to bring the system up to requirements, to improve supply, infrastructure and security. The reservoir was losing water and the quality was questionable.
Starting point	2016 with the public consultation
Detailed description	<p>Various models were presented,</p> <p>OPTION 1: Full management by Canal de Isabel II Gestión S.A.</p> <p>OPTION 2: Joint management between the City Council and Canal Isabel II</p> <p>OPTION 3: Full management by the City Council</p> <p>Once the technical and economic data had been analysed and with the clear objective of reducing water rates for residents and improving the safety and quality of the network, it was up to the villagers to decide on the model best suited for the management of water in the municipality. A special plenary session was held to explain and analyse in detail the management of water in Soto del Real. Subsequently, the</p>



Sectoral Council for Water Management was established, in which there were councillors from all groups and many residents with technical and professional knowledge on the subject, who know the subject in detail and could

contribute to the process. It is a complex matter with many variants, but great importance was put on recovering control of the management and decision-making by the Town Hall, with the interests of the residents in mind and without wasting the advantages of the serious and professional work that the Canal de Isabel II provides.

The public consultancy gave most support to the mixed management between the City Council and Canal Isabel II proposal. An action plan was developed to improve water management efficiency, consisting of:

- Improving the facilities, regularising water intakes and controlling the safety of the reservoir.
- Improving and adapting the Drinking Water Treatment Plant to current regulations.
- Automating the supply network.
- Improving the infrastructure to reduce water losses.
- Promoting savings in water consumption.

Within the first year, indications showed the relevance of the actions that had been carried out. There had been a very significant reduction in the number of broken pipes compared to the last 4 years. The previous year (2015) there had been over 50, whilst in 2026 there had been only 12.

Analysis showed that the quality of the water had also improved and the Town Hall then instigated a tiered water rate system that penalised heavy users of water compared to households and businesses that sought to use water responsibly. This was applied according to type of user (domestic or commercial) and had different cost/litre according to the quarterly volume consumed. The effect on water use in the municipality has ensured that consumers are more aware of the consequences when using water and have reduced consumption in the dry summer months. This has had the positive effect on the length of time the reservoir can supply the village with its own water. Part of the agreement with Canal Isabel II is that the water company will supply water from its network if the reservoir cannot meet demand from the residents in the municipality. For the past 5 years, Soto del Real has been supplied by its own reservoir without needing water from other sources.



Impact	
Beneficiaries	Primarily, the residents of the municipality
Environmental results	Better management and the improvements in the infrastructure in and around the reservoir have benefited the environment, especially as there is now water there all year round. Less breakages in the system also mean less water loss.
Social results	The residents haven't only benefited from better and more regular water but have also participated in the decision process. Most villagers are proud that they have a reservoir that supplies water and that it is managed by the Town Hall. It is one of only two municipalities in the Madrid region that can boast to own its own water.
Economical results	The savings on public funds from the Town Hall have been estimated at around 50,000€ a year and the long-term debt with Canal Isabel II that was inherited from the previous government has been cleared recently. Water rates are lower for the majority of consumers in the municipality and that money is going to improve and maintain the water management system.
Targeted SDGs	1 - No Poverty, 3 - Good Health and Well-being, 6 - Clean Water and Sanitation, 11 - Sustainable Cities and Communities, 12 - Responsible Consumption and Production, 13 - Climate Action, 14 - Life Below Water, 15 - Life On Land
EU Green Deal	Water Framework Directive, Bathing Water Directive, Biodiversity strategy for 2030, Zero Pollution Action Plan, From Farm To Fork, The common agricultural policy: 2023-27, A Blueprint to Safeguard Europe's Water Resources, EU Drinking Water Directive, EU Urban Wastewater Treatment Directive, EU Nitrates Directive, EU Floods Directive, EU Marine Strategy Framework Directive
Learnings	
Challenges faced	The renegotiation with the water company and convincing the villagers of the benefits of the change in management. The water company appeared to be more expert and better equipped to guarantee the water supply as other sources are available. There was a big political challenge to overcome as the previous government had taken the decision to hand over all the management to the water company.
Lessons learned	The key to success in changing the management of the water supply was the consultation with the residents, explaining the pros and cons



	of each option. Involving the population in the decision process ensured a smooth and planned change over and certain political advantage, This also allowed for modifications further down the line of the water rates.
Potential to transfer	The unique situation of the village having its own reservoir and its location at the foot of the mountains means that the change in management might not be possible for many other municipalities. However, being aware of the resources within a municipality and looking at the options to manage those resources could lead to reassessing the advantages of subcontracting or taking direct responsibility for the resource.
Future actions	Since the change in management of the water resource available in Soto del Real, major improvements have been made to the filtering and distribution of drinking water throughout the municipality. Also, a new water rates scale has been introduced to penalise heavy users of this precious resource with a high cost/litre, whilst acknowledging those who use water responsibly, using a reasonable amount of water, with a low cost/litre.
Resources	
Financial	To recover sovereignty of the reservoir, the municipality had to negotiate a package of measures with the water company that included paying off a large debt that had been accumulated by the previous government. In 2012, the Town Hall faced a significant debt of €1,817,771.52 with the Canal de Isabel II, due to unpaid water supply bills. This debt has now been paid, saving the municipality about 160,000€
Funding	All the finance for the paying off of the debt and the majority of the improvements to the filtering and distribution of the water has come from the municipalities own funds.
Human	The Town Hall used internal human resources to manage the changeover, although one additional position was created to handle the day to day tasks involved in the running of the reservoir.
Material / Logistics	A number of repairs and improvements were carried out and the negotiation with the water company included improvements in the distribution network and wastewater system.



Duration of implementation phase	The changeover took a couple of years
Additional or useful information	
Internet links	Modelo de gestión del agua - Ayuntamiento - Soto del Real. (2016, November 22). Ayuntamiento - Soto Del Real. https://www.ayto-sotodelreal.es/agua/



Waste management



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Decentralised composting in Pontevedra - 'Revitaliza', Spain



Characterization	
Type of action	Waste management
Geographical scope	Local
Location	Pontevedra, Galicia
Time scale	2015 -on going
Organisation in charge of the practice	Deputación de Pontevedra, Galicia
Type of organisation	Public (regional government)
Organization's brief description	The province of Pontevedra is composed of 61 municipalities with an approximate population of 960,000, of which 50% live in rural areas.
Contact person	https://www.depo.gal/es/formulario-de-contacto
Description	
Summary	Waste management is one of the main environmental problems that local councils must face and is difficult to solve. Thanks to decentralised composting the province of Pontevedra went from providing no options for bio-waste to a comprehensive and community-based system. After 9 years, already more than 6,000 tonnes of biowaste have been locally composted and the project rolled out in more than two-thirds of the province's municipalities.



	<p>Spain is still lagging behind regarding broader EU waste management objectives, but the story of Pontevedra proves that good results can easily be achieved with low-key and cost efficient measures.</p>
Goals	<p>Pontevedra started 'Revitaliza' with the aim of diverting the organic waste stream away from simply being disposed of. The objective was not only to shift away from burning or landfilling and towards composting instead, but it was designed to create a decentralised, community-led system of bio-waste management. In the long term this has resulted in a more cost-effective and environmentally friendly system that directly benefits the local community.</p>
Stakeholders	<p>Regional and local government, and the wider general public in the region</p>
Policy context	<p>The province of Pontevedra sits within Galicia, a large geographical region of sparsely populated towns and villages that account for only 2% of the Spanish population. In 2017, only 9% of the waste in Pontevedra was separately collected, leaving the remaining 91% to be transported more than 100 kilometres away to be either burned (70%) or landfilled (20%) in A Coruña.</p>
Social context	<p>As 'Revitaliza' is implemented by the province of Pontevedra to deal with households' waste, municipalities and its inhabitants are the first targets of the project. Yet, the project does not only stop at households but it also covers specific entities producing bio-waste in high quantities, such as restaurants, coffee shops, hotels, hospitals and schools.</p>
Environment context	<p>To shift from this unsustainable, centralised and expensive waste management system, the province of Pontevedra launched the project named 'Revitaliza' to build a decentralised composting system in the region. Taking into account that of the 348 kilograms of waste produced by inhabitants each year, 53% to 55% is biowaste (45% being food scraps and 8 to 11% being garden waste), the project was therefore designed to set-up a sustainable, local and cost-efficient management system for bio-waste.</p>
Starting point	<p>'Revitaliza' relies on a decentralised composting system to treat bio-waste, composed of 4 key factors:</p> <ul style="list-style-type: none">• A balanced input of materials that ensure a proper composting process can take place.• A suitable location for the composting process to be conducted at, which has to be adapted to the area's specific needs and context.



	<ul style="list-style-type: none"> • The design and implementation of an effective monitoring system to ensure the success of the process, by identifying and resolving issues that arise throughout the implementation phase. • Specialised training. A large part of the success lies in having opted from the beginning to train people capable of carrying out the maintenance and monitoring of community composting areas and of teaching and accompanying people interested in home composting in their learning process. They are called "Mestres Composteiros", a fundamental part of the 'Revitaliza' project.
<p>Detailed description</p>	<p>A good composting process relies on a mix of carbon material, such as garden waste, and nitrogen material, such as food scraps. As kitchen waste makes up the majority of waste in households, restaurants and hotels, it is a material to which everybody can access easily.</p> <p>However, since not everybody lives in a household with a garden, all residents cannot be expected to have access to home composters. Therefore in Pontevedra, to ensure a good composting process, the 'Revitaliza' project established garden waste sites for citizens to bring their garden waste surplus. This carbon material is then distributed to residents throughout the region. Three composting options are offered to the region's inhabitants depending on the density of the area:</p> <ol style="list-style-type: none"> 1. Individual composting (COIN) This consists of home composters for households with enough space to host them. They are distributed to households in scattered areas with a population size of between 100 and 1,000 inhabitants. 2. Community composting (CCC) These are made of composting boxes (called UMC) and a community will have access to either 3, 5, 6 or 10 composting boxes together in one location, depending on the community's size, to ensure sufficient space for a proper composting process to take place. Community composting sites are set up in densely populated areas. 3. Local Composting Plants (PCC) For areas too densely populated for home composting or community composting, small scale composting plants have been established to treat biowaste. These plants are limited by two factors: no more than 2.000 tonnes per year and less than 45 km from bio-waste producers. <p>The project was designed to ensure that more than 75% of the inhabitants will be covered by a decentralised composting process, either through systems at home or in their local community. Therefore, an efficient monitoring and data collection process was needed, since the</p>



	<p>system was not going to be managed by professional technicians (in the case of home composting) but rather by individual citizens and communities. In Pontevedra, specific monitoring and data collection processes were established for both community and home composting to address the different specifics of each system.</p> <p>For community composting, the “Mestres Composteiros” are the professionals in charge of maintenance tasks, such as watering the compost if it dries out too much, mixing kitchen and garden waste by turning it, and extracting and sieving the compost once it is ripe. But, in addition to these basic tasks, they keep an exhaustive collection of data: filling level, temperature, incidents that may arise and their resolution.</p>
Impact	
Beneficiaries	Mainly the local inhabitants and the natural environment are the beneficiaries of the project. However, the project not only offers health and environmental benefits but also saves the municipalities and the regional government money.
Environmental results	The circular nature of composting biowaste gives positive results to the environment, as the alternative being employed before the 'Revitaliza' project got underway was either incineration or landfill with the obvious negative effects of these unsustainable methods.
Social results	The 'Revitaliza' project has stimulated community-led systems through bio-waste management. Not only has this resulted in a more cost-effective and environmentally friendly system but it has also benefited the local community in many social aspects. Undoubtedly, job creation has been one benefit, but it should not be forgotten that it also promotes collaboration between people and the assumption that a common social responsibility creates bonds that go beyond the simple fact of managing domestic waste.
Economical results	Decentralised composting provides a system where costs can be lower, compared to a centralised system. In 2017, municipalities had to pay a fee of €177 per ton for the waste treatment, including transport and collection costs (€109) and the cost of incineration (€68). The cost per ton of treated waste should be 4 to 5 times lower than the centralised system. Costs are now less than €40 per tonne.
Targeted SDGs	1, 2, 3, 6, 9, 11, 12, 13, 14, 15
EU Green Deal	Waste Framework Directive, Biodiversity strategy for 2030, Zero Pollution Action Plan, EU strategy for sustainable and circular textiles, Batteries



	<p><u>Directive</u>, <u>Directive on end-of-life vehicles</u>, <u>Landfill Directive</u>, <u>Extractive Waste Directive</u>, <u>Packaging Directive</u>, <u>Directive on the disposal of PCBs/PCTs</u>, <u>RoHS Directive</u>, <u>Sewage Sludge Directive</u>, <u>Ship Recycling Regulation</u>, <u>Regulation on persistent organic pollutants (POPs)</u>, <u>Waste Shipments Regulation</u>, <u>WEEE Directive</u>, <u>Single-Use Plastics (SUP) Directive</u></p>
<p>Learnings</p>	
<p>Challenges faced</p>	<p>The 'Revitaliza' project is already showing highly encouraging results where it has been rolled-out. The next step is for all the 61 municipalities to join the project (including Vigo), and in the long run for the municipalities to run the system autonomously. Some entities have also proven to be challenging, such as restaurants producing high volumes of bio-waste. Since the quantity varies regarding the time of the year due to seasonal factors, this results in some issues with the composting process that lead to extra costs for the project to solve. In this regard, specific systems are under consideration to train employees to manage the composting process themselves or to propose a fee for 'Revitaliza' to take care of it.</p>
<p>Lessons learned</p>	<p>An important factor in the success of the project is the use of a strong communication plan, intended for residents living within the municipalities targeted by the project. For example, home composting visits are communicated well in advance and planned to properly explain the process to residents. Whereas for community composting sites, public meetings are organised before the set-up and explanations are given to all participants to ensure a clear understanding of the composting methods and requirements.</p>
<p>Potential transfer</p>	<p>to One key factor to highlight when examining the 'Revitaliza' project is the data gathering conducted before and during the project. The project started in 2015 but the roll-out phase began one year later, after which precise data was gathered and analysed, leading to a concrete and realistic work plan. Recognising the challenges of creating a decentralised system from scratch, within an existing centralised one, 'Revitaliza' thoroughly analysed how the population was scattered and for each type of area, assessed what was the most adequate treatment for each region. Not only was this done for the whole province, but an analysis was also done specifically for each of the 61 municipalities, providing the exact number of home composters or composting boxes that were needed in each municipality. The same methodology will be require if the project is to be transferred to other areas, always adapting to the specific characteristics of each territory.</p>



Future actions	Among the municipalities which have already joined, not all of them are completely covered with composting options, so the aim is to improve that. Another consideration is extending the project to the municipality of Vigo. Being a densely populated area, Vigo was taken into account during the data gathering but left out when concretely rolling out the project, as it was deemed too complex to cover in the first phase.
Resources	
Financial	It is estimated that over the 9 years that the 'Revitaliza' project has been running, the regional government has invested over 10€ million and the municipalities a further 4€ million.
Funding	About 70% of the funding comes from the regional government (50% of that from European and State funding) and about 30% comes from municipal funding.
Human	The regional government has a team of over 20 people working on the project and other waste related tasks. The municipalities have between 2 and 8 people employed on the project and a lot of local residents as volunteers.
Material Logistics	Materials include composting bins, aerators and other tools. Some municipal transport is required to move garden waste and distribute the compost to public areas such as parks but the majority of the 'raw material' is provided by households, restaurants, etc.
Duration of implementation phase	The first phase of the project was analysed after three years but it is an ongoing process as the project is rolled-out.
Additional or useful information	
Internet links	Deputacion de Pontevedra. (n.d.). Deputacion de Pontevedra. Residuos. https://www.depo.gal/es/web/residuos/programa-de-compostaxe-local-revitaliza https://www.depo.gal/es/web/residuos



Community and domestic composting 'Soto Composta', Spain

Characterization	
Type of action	Waste management
Geographical scope	Local
Location	Soto del Real, Madrid
Time scale	2016 -on going
Organisation in charge of the practice	Soto del Real Town Hall, Madrid
Type of organisation	Public (municipal government)
Organization's brief description	The municipality of Soto del Real is a large village 42 km north of the city of Madrid, at the foot of the mountains of the Sierra de Guadarrama. The population is almost 10,000 people that becomes 20,000+ in the summer and some weekends due to the abundance of holiday residences.
Contact person	Ignacio García Castañares ngarcia@ayto-sotodelreal.es
Description	
Summary	The Soto del Real Town Hall has been promoting a domestic composting programme for residents who have a garden area in their home and want to transform the organic waste they generate into compost. In 2018, the first community composting area in the municipality was launched with the same objective, an initiative that is intended to be extended to larger establishments (hotels, restaurants and schools, etc.), as well as to residents in homes that do not have a garden area. In this way, the municipality has different composting options that can be expanded depending on demand and available resources.
Goals	The main aim of the project is to reduce the amount of organic waste that ends up in the landfill tip 10 km away and the related costs that are involved in that system. Also, the project aims to get people more involved and create awareness of our level of consumption that generates the waste. There is also the aim to create additional



	awareness of replacing what we take from the earth and the circular economy.
Stakeholders	General public, schools, restaurants, old people's homes, etc. in the municipality. Also, the regional government of the Comunidad de Madrid and municipalities in the area.
Policy context	Soto del Real, along with 75 other municipalities, is part of the Northeastern Waste Group of the Comunidad de Madrid (there are two other jointly run groups in the region of Madrid). There are a number of municipalities that want to decentralise the management and treatment of organic waste and Soto del Real is leading that movement.
Social context	With this campaign, the Soto del Real Town Hall wants to contribute to raising the ecological awareness of the population, involving citizens in the management of their waste. The best way to avoid the installation of incinerators in the vicinity of the municipality or the enlargement of the current landfill site is by recycling and managing waste properly.
Environment context	The location of Soto del Real at the foot of the Sierra de Guadarrama mountains, partially in the National Park, wholly within the the Regional Park of the Cuenca Alta del Manzanares and the Biosphere Reserve of the Cuencas Altas del Río Manzanares, Lozoya y Guadarrama mean that the environment is of special interest and concern. Organic waste, especially garden waste accounts for a high percentage of all waste collected in the village. Burning and landfill is not a sustainable system. Compost also returns the organic material to the soil thereby avoiding soil degeneration.
Starting point	Aware of the need to separate waste at source and the enormous amount of organic matter (around 50%) that went to landfill, the Soto del Real Town Hall approved in 2016, in a municipal plenary session, an Ordinance regulating composting and another one reducing the waste tax for those families who were involved in composting. Later, in 2018, the reduction in the waste tax was modified to also include the commercial sector. Given the need to adapt the Waste Ordinance to the new Law 7/2022 on waste and contaminated soil for a circular economy, Soto del Real has made a new modification to its ordinance, accompanying it with a Tax Ordinance. The changes have a direct impact on improving the sustainability of management and good environmental practices.
Detailed description	Current waste legislation, both at the EU and national level, prohibits the disposal in landfills of waste that can be reused and recyclable, including compostable waste. Consequently, the aim is to encourage the separate





collection of different types of waste so that it can be reused and recycled. To this end, measures such as landfill and incineration fees have emerged, which encourage local councils to significantly reduce the tonnes they send to landfills. By implementing Management Plans and Selective Collection Systems that promote Prevention, Reuse and Recycling, municipalities can avoid the increases in landfill costs. At the same time, local councils have the power to apply economic incentives to their citizens, such as reducing the waste tax for those who participate in composting programmes, and when possible, implementing “pay-per-generation” systems.

The 'Soto Composta' project is about promoting a change that will be beneficial for everyone. At the national level, in April 2022, Law 7/2022 on waste and contaminated soil for a circular economy came into force, which obliges all municipalities to separately collect organic matter and treat it, preferably, through composting. 'Soto Composta' began in 2016, and the Soto del Real Town Hall has promoted the benefits of the system almost every year since, inviting the villagers to subscribe to the project, receive instruction in a workshop, buy a compost bin at 50% the market price, reduce their waste tax and other incentives to increase the number of participants. Currently, there are more than 400 households signed up to the project (over 10% of the population), 3 schools and one hotel. There are another 50+ households that are registered as individually composting (so they benefit from the reduction in the waste tax).

Villagers who participate in the composting programme have the right to:

- Receive a free training workshop
- Online and in-person support
- The possibility to acquire the necessary material (composter and aerator) at a subsidised price.

In return, the villagers have to commit to:

- Attend the training workshop
- Put composting into practice
- Allow the accompanying visit to resolve any doubts and problems that may arise
- Inform the Town Hall of the start date of composting and, if applicable, the end date
- In the case of a request for a reduction in the waste tax, villagers must allow for the corresponding verification visit.



Impact	
Beneficiaries	Villagers who subscribe to the project and the Town Hall (cost savings). Also the environment, in particular the soil that receives the compost.
Environmental results	Since the organic matter collection began until June 2024 (8 years), an estimated total of 850,700 kg of organic matter has been collected, in addition to approximately 240,400 kg of structuring material (pruning shredding). This, in turn, has produced an estimated 130,600 kg of compost that has been returned to the soil.
Social results	As the project has progressed over the 8 year period, more and more people have joined the project, either directly through the workshops and follow-ups or the community composting schemes. The project has received some media coverage and other municipalities have followed the lead set by Soto del Real.
Economical results	Even allowing for the reduction in the waste tax for those villagers participating in the project, the Town Hall has saved an estimated 15.250 € over the period up until June 2024.
Targeted SDGs	1, 2, 3, 6, 9, 11, 12, 13, 14, 15
EU Green Deal	Waste Framework Directive, Biodiversity strategy for 2030, Zero Pollution Action Plan, EU strategy for sustainable and circular textiles, Batteries Directive , Directive on end-of-life vehicles , Landfill Directive , Extractive Waste Directive , Packaging Directive , Directive on the disposal of PCBs/PCTs , RoHS Directive , Sewage Sludge Directive , Ship Recycling Regulation , Regulation on persistent organic pollutants (POPs) , Waste Shipments Regulation , WEEE Directive , Single-Use Plastics (SUP) Directive
Learnings	
Challenges faced	The number of villagers participating at the beginning was low, as changing habits is a major obstacle and prejudices regarding waste are clear. Most people want to throw the rubbish into the public container and leave the responsibility to get rid of it to the local authority. Education is the key to bringing more people into the project.
Lessons learned	Incentives and encouragement are necessary to build confidence in the participants and a close follow-up helps to maintain that confidence. Community schemes are more difficult to set up but are more rewarding as greater volumes can usually be achieved, especially if personnel are employed to manage the scheme.



Potential transfer	to	Now that the project has been running for a number of years and the benefits are clear to the participants, it should be simple enough to expand to more community schemes and other stakeholders.
Future actions		The next steps for the project are to get more commercial enterprises involved (restaurants, old people's homes, etc.). Also, more community schemes in different areas of the village. The Town Hall also wants to work towards a 'Zero Waste' certificate.
Resources		
Financial		50.000€ of total investment
Funding		PIMA subsidies, which are state-owned (MITECO) but managed by the autonomous communities. No estoy segura si tb ha habido parte de fondos next generation, pero eso pregunta a Loli para no meter la pata
Human		One part-time environmental technician and one environmental educator.
Material / Logistics		Workshops, compost bins, aerators, manuals and visits
Duration of implementation phase		3 years and ongoing
Additional or useful information		
Internet links		(n.d.). Mancomunidad de Municipios del Noroeste Mancomunidad delNoreste. Mancomunidad Del Noreste. https://mancomunidaddelnoroeste.org/

Environmental education and social participation



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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. Project number: 2021-1-BE02-KA220-ADU-000026044



BioEscola, Portugal



Characterization	
Type of action	Education
Geographical scope	Local
Location	Portugal, Porto, Lousada
Time scale	2018- ongoing
Organization in charge of the practice	Lousada Municipality
Type of organization	Local government
Organization's brief description	The BioSchool project, developed and implemented by the Municipality of Lousada in partnership with the BioLiving Association, is governed by these principles, as well as the norms of the National Environmental Education Strategy 2020 (ENEA 2020).
Contact person	Email: bioescola@cm-lousada.pt Telm. 930 404 387 Setor de Conservação da Natureza e Educação Ambiental Divisão de Ambiente - Município de Lousada
Description	
Summary	BioEscola is an integrated environmental education program that takes place in all schools in the Municipality of Lousada. The project emerged with the aim of promoting scientific literacy and environmental awareness, through complementary activities to regular classes and syllabus, within the scope of the most diverse disciplines. In four years of project, BioEscola already has more than 20,000 participants, in more than 700 activities framed in 20 disciplines.



Goals	<p>The BioSchool program, since its inception, aimed to approach the student community of Lousada in an innovative, practical, but above all, useful way, both for students and teachers. In the design of the program, the applicability of activities in the work context, the local reality of Lousada, and the integration of workshops with the respective curriculum plans were always taken into account.</p> <p>In summary, the activities offered in the BioSchool catalog mainly include practical workshops, guided visits to environmental points of interest, scientific experiments, conferences, training for teachers and operational assistants, and dissemination or training actions for other environmental projects also promoted by the Municipality of Lousada (http://www.cm-lousada.pt/pt/bioescola).</p>
Stakeholders	Schools, Biologists and Environmental educators from Municipality of Lousada and other entities (e.g., Volunteer Firefighters of Lousada and Civil Protection, , etc.)
Policy context	<p>The diversified type of activities with different stakeholders supported the policy dimension of the project, such as guided visits to sites of environmental intervention and built heritage along rivers; environmental awareness conferences with partner biologists and other entities (e.g., Volunteer Firefighters of Lousada and Civil Protection, Municipality of Lousada, etc.); collection of data related to the nature and environment of each location, among other activities.</p> <p>For the implementation of the project to make sense also from an educational perspective, all activities were accompanied by each class's head teacher and incorporated the academic curriculum as complementary educational offering.</p>
Social context	The Environmental Education Project - BioSchool of the Municipality of Lousada emerged with the aim of achieving the goals set in terms of environmental education and social involvement. Developed based on the curriculum plans, this program consisted of a catalog of thematic workshops. After a year of the project, a total of 5143 students were reached in 195 workshops and 13 different subjects. For the future, BioSchool aims to encourage greater participation from schools in the municipality and reward the schools most committed to environmental protection.
Environment context	BioSchool aims to encourage greater participation from schools in the municipality and reward schools that are more committed to environmental protection. The primary focus of the BioSchool strategy



	<p>is to encourage greater participation from schools in the municipality and reward the schools most committed to environmental protection through a scheme of counterparties. Municipalities have been giving these types of projects more priority, with the increasing awareness regarding this subject.</p>
Starting point	<p>In order to formulate an educational strategy that leads to behavioral change, there must be a solid foundation of scientific knowledge that defines and guides ecologically sound attitudes. Currently, environmental education projects are constructed by</p> <ul style="list-style-type: none"> (i) promoting the development of critical, ethical, and creative thinking to assess environmental situations, (ii) enabling the making of informed decisions about these situations, (iii) and fostering the ability to commit to action, both individually and collectively, with the aim of promoting a sustainable environment (Stevenson et al., 2012). <p>The Environmental Education project - BioSchool of the Municipality of Lousada was created with the aim of achieving the established goals related to environmental education and social involvement. Developed based on curriculum plans, this program consisted of a catalog of thematic workshops.</p>
Detailed description	<p>The BioSchool is an integrated environmental education program implemented in all schools in the Municipality of Lousada. Its aim is to achieve the goals of environmental education and social engagement while promoting scientific literacy and environmental awareness through supplementary activities that complement regular classes and curricula across various disciplines.</p> <p>Teachers have the flexibility to choose activities from the available catalogs, and these activities can be conducted by municipal technicians in classrooms, outdoors, or even in real-time through digital platforms!</p> <p>The strong emphasis is on the widespread dissemination and replicability of the project, ultimately cultivating good environmental practices and local solutions to global problems. The promotion of sustainability, nature, and education throughout the community will undoubtedly, in the near future, result in a more conscientious, critical, and caring municipality towards the natural world, contributing to an improved quality of life for everyone.</p>



Impact	
Beneficiaries	Teachers and students
Environmental results	<p>Within the scope of BioSchool - Grow with You, at Sousela Basic School, a pilot evaluation of the mechanisms for assessing the evolution of knowledge and attitudes acquired by students was conducted. Therefore, a diagnostic test with six questions about the environment and nature was administered to 1st-grade students at the beginning of the activities, and the same test was repeated one month later. The number of correct answers was tallied for each test situation. The results regarding the evolution of students' knowledge were clearly positive, with a significantly higher number of correct answers in the second test for five out of the six questions.</p>
Social results	<p>70,000 student participations in the Bioescola program over 5 years, spanning more than 3,500 activities.</p> <p>This has resulted in a younger generation that is more connected to and comfortable with nature, more environmentally conscious, and with a greater understanding of the importance of all components within an ecosystem.</p> <p>Additionally, teachers have adopted the habit of incorporating non-formal education techniques into their teaching methodologies, enhancing the consolidation of learning.</p>
Economical results	<p>Since the beginning of the BioSchool program, both environmental and economic sustainability have been recognized as fundamental pillars for the project's medium to long-term maintenance. In this regard, it is necessary to review the municipal annual budget for the program every year, with the primary concern not being financial returns but rather the dissemination of municipal efforts in the fields of environment and education. However, to alleviate the municipal financial burden, applications are submitted in the field of environmental conservation and environmental education.</p>
Targeted SDGs	4, 13, 17
EU Green Deal	Chapter 1; 2; 4
Learnings	
Challenges faced	The shift in the environmental paradigm in Portugal, or anywhere, involves a change in mindset and the implementation of actions at the



	<p>local level to create a more comprehensive collective impact. Change can occur under the influence of new generations, better prepared for the current reality, who bring as new goals the cultivation of good environmental practices and understand environmental issues as immediate urgencies that affect the quality of life for everyone. The term "sustainability" must be used consciously and accompanied by an explanation that makes it assimilable and understandable, in order to conceptualize and illustrate the expected change for the present and future.</p>
Lessons learned	<p>A project of this magnitude needs to establish and strengthen its foundations to assert itself as a local and potentially national reference. To achieve this, it needs to confirm its pedagogical effectiveness through various types of assessments, enhance the participation of the school community through dissemination channels, and be optimized for replicability by those interested in it. Integrated and inclusive pedagogical strategies, which place environmental issues at the forefront, as seen in Lousada, will make it and other municipalities more socially conscious, critical, and caring for the local natural world.</p>
Potential to transfer	<p>The long-term aspiration primarily focuses on the dissemination and replicability of the project, with the ultimate goal of cultivating good environmental practices and local solutions to global problems. The promotion of sustainability, nature, and education throughout the community will undoubtedly result in a more conscious, critical, and caring municipality towards the natural world in the near future, contributing to an improved quality of life for everyone.</p>
Future actions	<p>For the future, the BioSchool project aims to encourage greater participation from schools in the municipality and reward schools that are more committed to environmental protection through a scheme of incentives. There is also a plan to increase the number of medium and long-term follow-up projects, diversify training topics for both teaching and non-teaching staff, and expand the variety of available workshops to involve more disciplines in the program.</p>
Resources	
Funding	<p>To try to reduce the municipal financial burden, applications are submitted in the field of environmental conservation and environmental education. The example given here is one made for the Academias 25<25, promoted by the Calouste Gulbenkian Foundation. However, this is not the only application, as in previous years, several</p>



	<p>applications were submitted, contributing annually to the financial effort supported by the Municipality of Lousada.</p> <table border="1"> <thead> <tr> <th>TOTAL INVESTMENT</th> <th>Human Resources (€)</th> <th>Technical Resources (€)</th> <th>Facilities and Consumables (€)</th> </tr> </thead> <tbody> <tr> <td>Municipality of Lousada</td> <td>106,800</td> <td>15,000</td> <td>17,000</td> </tr> <tr> <td>Calouste Gulbenkian Foundation</td> <td>50,000</td> <td>7,000</td> <td>10,000</td> </tr> <tr> <td>TOTAL (€)</td> <td>156,800</td> <td>22,000</td> <td>27,000</td> </tr> </tbody> </table> <p>FINAL TOTAL (€):205 800</p> <p>Table 1: Distribution of financial resources from funding entities Source: Municipality of Lousada, 2021</p>	TOTAL INVESTMENT	Human Resources (€)	Technical Resources (€)	Facilities and Consumables (€)	Municipality of Lousada	106,800	15,000	17,000	Calouste Gulbenkian Foundation	50,000	7,000	10,000	TOTAL (€)	156,800	22,000	27,000
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Calouste Gulbenkian Foundation	50,000	7,000	10,000														
TOTAL (€)	156,800	22,000	27,000														
Human	Two full time environmental technicians and one environmental educator.																
Material / Logistics	Two vehicles; office supplies; material transport boxes; video and photography equipment for educational videos; children's gardening tools; 3D glasses; microscopes; various.																
Duration of implementation phase	1 Academic year Including: Project Design; Creation of an interdisciplinary team for the implementation of the project; Manage and coordinate human and financial resources, ensuring that all tasks are executed according to established regulations.																
Additional or useful information																	
Internet links	https://www.cm-lousada.pt/p/bioescola https://run.unl.pt/handle/10362/153410 https://www.lucanus.cm-lousada.pt/2018/11/18/bioescola/																
Bibliography	Stevenson, R.B., et al. (2012). International Handbook of Research on Environmental Education, 1ª Edição. Routledge, New York.																
Others	https://www.youtube.com/@BioEscola https://www.instagram.com/bio_escola/																



Others

Good practice recognized by ODS:

<https://odslocal.pt/boas-praticas/bioescola-programa-de-educacao-ambiental-para-a-valorizacao-e-protecao-dos-valores-naturais-1378>

The BioSchool project will receive a monetary award of 30 thousand euros and technical support and mentoring from the Calouste Gulbenkian Foundation.





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