



European
Commission



Circular
Cities & Regions
Initiative

Roadmap for Guimarães – December 2024 draft (versão em contínua revisão)

*Research and
Innovation*

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CCRI Roadmap for Guimarães

Information for the reader/user

Objective of this file

This file is intended to serve as a tool for planning, following up and monitoring the work of the Pilots on their CSS during the CCRI-CSO support phase. The roadmap connects to other instruments such as the CCRI-Methodology (CCRI-M) and CCRI Self-Assessment Tool (CCRI-SAT). It is an internal living document which will be co-drafted by each CCRI-CSO Pilot Companion and her/his respective Pilot and updated throughout the project.

At the initial stage, it includes an overview of the CSS, the context and challenges, and a preliminary plan to address the needs identified during the first months of the project. It is OK not to be able to fill the entire document at this stage. As the activities take shape, relevant sections of the document will be added and drafted further.

The document will be updated as the Pilot's progress towards their short-term, medium-term and long-term objectives, underlining each time the actions planned and accomplished, outputs and outcomes as well as challenges and lessons learned.

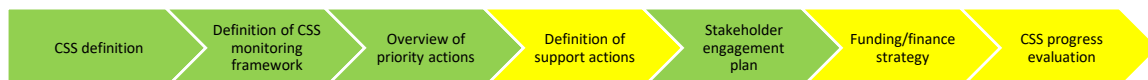
Each Pilot Roadmap should be updated every six months by the Pilot Companion (as stated in the Amendment) and reviewed by the respective Pilot. Each version will have to be saved in a dedicated Teams folder.¹ The next update is expected for May/June 2025. These reviews shall coincide with the CCRI implementation reports (and at specific times, if needed), comparing the planned actions and outcomes to the actual ones, listing new actions and objectives and timelines to achieve them. The Pilots are expected to take more responsibility in helping update this file as the project progresses.

Name of the Pilot Companion: Alina Margolina (EGEN)

Name of the back-up/support expert (in case Pilot Companion is unavailable): Tjerk Wardenaar (EGEN)

Overall status of the roadmap [*regularly updated*]

[Please colour the cell accordingly: completed, in progress or not started]²



¹ CCRI-CSO – DG RTD shared channel > Laboratory Block > Support activities > Tailored support Pilots > Pilots folders – roadmaps and fiches.

² Please note that colouring a step with green does not mean that Pilots cannot go back and review or improve this. We encourage you to ensure that each section is checked (and adjusted, if necessary) with each update.



1. Circular Systemic Solution Overview

[for CSO: information to be taken from the Needs Assessment]

Short description of the CSS

Fuelling sustainability through biowaste prevention, collection and valorisation

Guimarães is on a mission to make waste management more sustainable through the gradual introduction of separate biowaste collection. This effort is a part of the BioWaste Action Plan, which is integrated into RRRICLO, a circular economy roadmap. It is targeting various sources of biowaste, ranging from households and restaurants to schools, hospitals, parks and local farms.

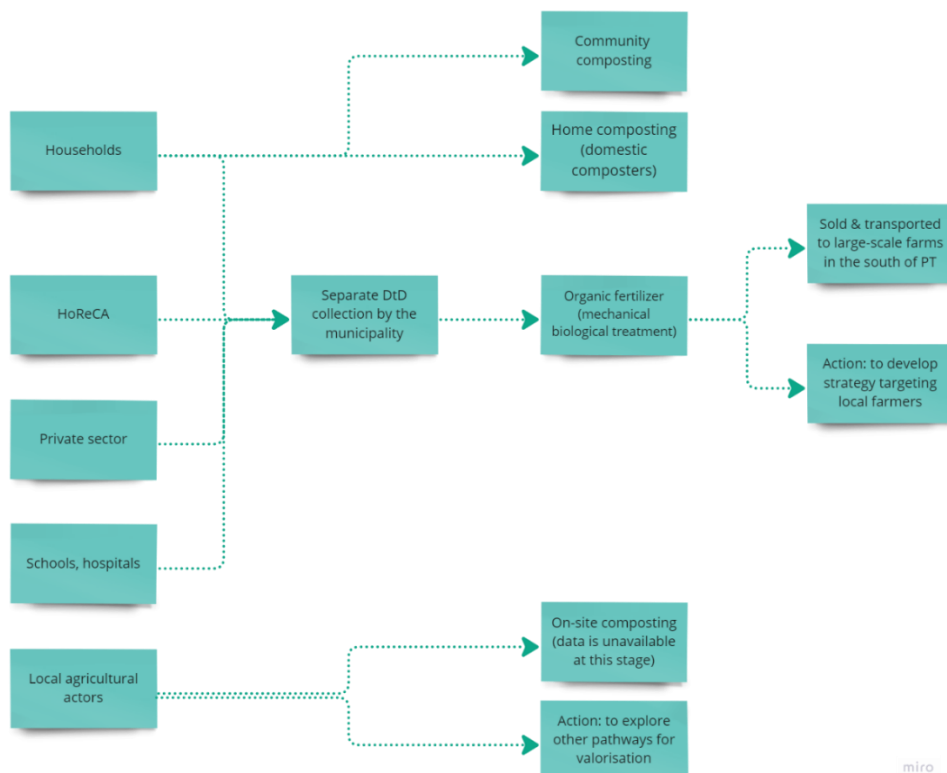
The pilot is not just collecting waste; it is transforming it into valuable resources through initiatives such as home or community composting, organic fertiliser production, and even converting waste into energy.

Guimarães is also taking proactive steps to spread awareness about the importance of preventing food waste among public schools, universities and citizens.

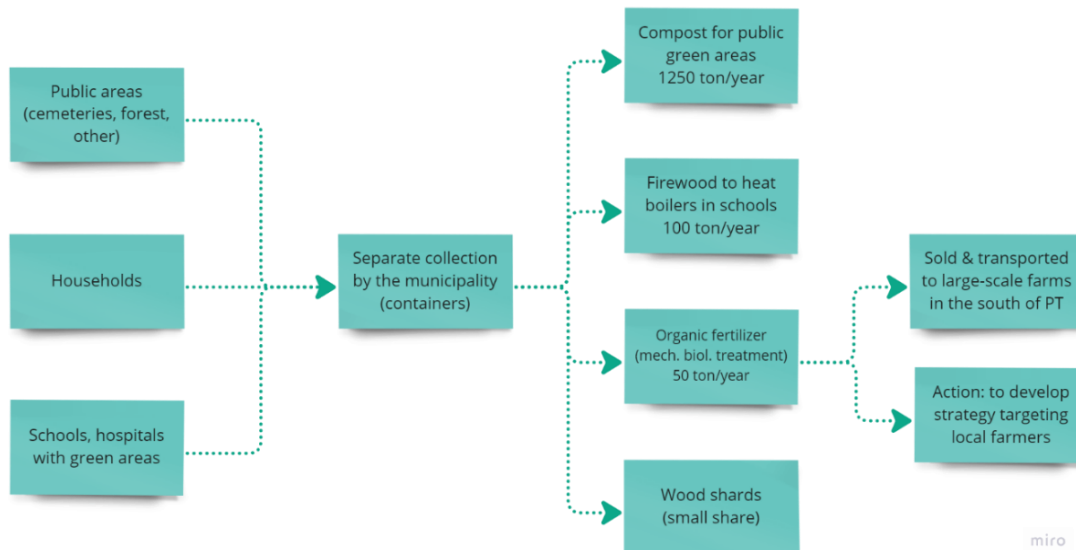
Each activity is described in more details in Annex II.

The implementation of the roadmap and the Action Plan started in December 2021.

Graphical representation: Collection and valorisation of organic waste in Guimarães



Graphical representation: Collection and valorisation of green waste in Guimarães



Vision, objectives and characteristics

Objectives of the CSS

- **General** [What is the CSS aiming to achieve in broader terms? For instance: to accelerate the transition to circular economy in the construction sector, to reduce the use of raw materials in the region, to ensure a more resilient food supply chain, to improve soil health by reducing the use of chemical fertilisers ...]
 - To accelerate the transition to circular economy in waste management
 - To prevent food waste
 - To reduce (bio)waste production
 - To improve cooperation between stakeholders under the GGE framework
 - To achieve carbon neutrality under the EU Cities Mission, in 2030
 - To accelerate the transition to circular economy in the HoReCa channel and schools
 - To reduce the amount of mixed municipal waste entering the landfill
 - To reduce the use of chemical fertilisers by local farms
 - To increase consumption of local products by residents
 - To reduce carbon footprint
- **Specific** [Specific objectives are more limited in scope and are expected to lead to the general objectives specified above. They are related to immediate results of the CSS. Example: to develop a platform to encourage industrial symbiosis in the construction sector]
 - To establish a separate collection system of bio-waste at the source – 40% of the population by 2023, 50.7% by the end of 2024 – 2.7% higher than the expected (contribute to achieving 100% of the population by 2028).
 - To explore and identify most appropriate pathways for biowaste valorisation.
 - To increase public awareness about food waste (and food loss) at home, sustainable shopping and cooking.
 - To characterize food loss and food waste coming from the agricultural sector in Guimarães.

Vision

[This section goes in more detail about the objectives of the CSS. These are formulated as impacts and timeline to achieve them.]

	Inputs (resources)	Expected outputs (planned activities)	Expected outcomes (direct results)	Expected quantitative and/or qualitative impacts (indirect results) ³
EXAMPLE	[This can refer to resources (e.g., funding, expert knowledge, information, etc) that are needed to concretise the CSS]	[Activities that are planned (e.g., has a stakeholder platform been built? Have circular criteria been introduced in public procurement]	[Outcomes that are produced through the activities (e.g., reduction of food waste generation, reduction of extraction of primary materials).]	[Intended and unintended short and medium-term effects of the CSS. Please include targets when possible] What are the impacts generated by the outcome or output – e.g., have GHG emissions been reduced (quantitative)? Example (qualitative): increased awareness among the industrial stakeholders, reuse as a default choice for customers by 2030 Example (quantitative): 95% of household waste separated at the source, 60% reduction of waste production from construction sector, yearly %5 reduction of food waste from businesses
1	Funding, Research and Development	Separate collection system of bio-waste at the source has been established	40% of the population is covered by biowaste collection system by the end of 2023; 50% by the end of 2024 Bio-waste capture rate of 35% - collected separately at the source by the end of 2024 Separate collection of 7500 ton/year by the end of 2023 Actual for 2023:	Increased awareness among households and HoReCA channel to prevent food waste, reuse as a default choice by 2030

³ Please note that the CCRI-SAT can assist in identifying indicators to assess outputs, outcomes and impacts and in defining targets. In addition, the CCRI-M (on p.87 and 99) provides more detailed explanations and examples of outputs, outcomes and impacts.

			6182 ton biowaste; 1500 ton greenwaste and 7682 ton/year	
			Separate collection of 12840 ton/year by the end of 2024	
2	Actions to improve other territories to start biowaste collection	Most appropriate pathways for valorisation of collected biowaste have been defined	Contribution of selectively collected bio-waste to the rate of preparation for reuse and recycling: 23% by 2024	<ul style="list-style-type: none"> - Reduce quantity of refused waste from the mechanical biological treatment sent to landfill - Obtain a better quality fertilizer to be used on farms' land - Engage citizens in individual and community composting -> contributing to food waste reduction, sharing excess compost with stakeholders who need it (e.g., local farmers, businesses)
3	Funding	Public awareness about food waste (and food loss) at home; sustainable shopping and cooking has been significantly increased	Bio-waste reduction (kg or kg/capita): 85kg/capita for household users and 1864000kg for non- household users by the end of 2024	Population engagement (in biowaste collection) is at 88% by the end of 2024
4	Knowledge	Food loss and food waste coming from the agricultural sector in Guimarães has been mapped & key actions defined	Local agricultural sector is mapped Relevant awareness campaigns are organised	Improved knowledge of the agricultural sector (ongoing work for 2023 & 2024). The quantity of food waste from the agriculture sector is reduced. 50% of farmers is committed to food loss and waste prevention actions by the end of 2024. A communication-action strategy will be implemented with early- adopters to monitor waste production from agriculture.

R's addressed by the CSS: [Please highlight with yellow which R's of the 9R framework the CSS is linked to. Check this [link](#) for a broader overview of the R's]

Refuse – Rethink – Reduce – Reuse – Repair – Refurbish – Remanufacture – Repurpose – Recycle – Recover

Systemic character of the CSS [Check Annex 1: Updated definition of CSS for a description of the CSS dimensions] [regularly updated]



CCS dimension	Status	Elements included
Multi-sector	Yes	Food (address food losses/waste/prevention), agriculture (engage local farmers), forestry (green waste collection and valorisation), bioeconomy , waste management , energy (energetic valorisation to heat boilers in schools), trade (of the produced fertiliser), social community (awareness & engagement).
Multi-stakeholder	Yes	Public administration and local entities (City Council of Guimaraes, parish councils – 48 parishes in total), business actors (e.g., Vitrus Ambiente, Resinorte), households , HoReCa & retail , local farmers , academia/research (Landscape Laboratory, Structure Mission Guimarães 2030), NGOs (e.g., ReFood), other – municipal market actors, schools/university/sport facilities, technological organizations (CVR – Centre for Waste Valorisation).
Multi-circularity	Yes	Exploration of new business models (in relation to valorisation of biowaste & the role of different stakeholders), green public procurement , governance operating model (exploring and defining the roles of the public and private sectors, agricultural sector, citizens).
Multi-impact	Yes	Environmental (reduction of greenhouse gas emissions, soil fertility improvement); stakeholder and citizens mobilisation & engagement ; competitiveness & innovation and economic benefits (resulting from implementation of potential new business models).

For more information, see [Pilot Presentation Fiche](#)

Starting point

Context for the CSS

The Municipality of Guimarães is deeply committed to EU Missions as evidenced by its membership in ICLEI - Local Governments for Sustainability and the Covenant of Mayors Europe. Additionally, Guimarães is actively engaged in the EU Mission NetZero Cities, the Green City Accord, and begun the Zero Waste City Certification, by the Mission Zero Academy. These partnerships have played a crucial role in accelerating Guimarães' transition to zero waste at the local level. In pursuit of this Zero Waste mission, Guimarães is implementing a series of strategies and adaptation actions to better manage waste, with a focus on promoting the Circular Economy in the territory. To that end, the RRRICICLO - Circular Economy in Guimarães initiative has been developed collaboratively by the Municipality of Guimarães, Laboratório da Paisagem and Vitrus Ambiente. The CE roadmap was developed through a participatory process involving various institutions and local associations. The roadmap includes action plans for key sectors, including biowaste management, municipal waste management, and communications, all with clearly defined objectives and measurable targets.

Through the RRRICICLO strategy, which has been in effect since 2021, Guimarães is actively tackling biowaste by emphasizing the principles of refusing, rethinking, reducing, reusing, repairing, recycling and recovering biowaste. A pivotal aspect of this strategy concerns the Biowaste Management Plan for 2030 which aims to establish a comprehensive network for separate organic waste collection across the municipality. This plan also foresees the implementation of a network to separately collect organic waste and implement home and community composting by providing composters to schools and households while conducting training sessions to promote individual and community composting efforts.

More details can be found in Annex III.

Other initiatives that can potentially support the implementation of the CSS as well and/or where synergies can be found (to be explored/confirmed):

- [EU Mission NetZero Cities](#) (Guimaraes is one of the Pilot Cities). More information can be found on [Net Zero Cities](#) website.

Challenges to circularity in general and for CSS in particular

[for CSO: information to be taken from the Needs Assessment]

The following challenges are hindering the transition to a circular economy in Guimarães:



- Guimaraes is considered to be a diffuse territory (as opposed to compact territory in urbanistic terminology) as it encompasses different land use (agriculture, forest area, industrial activities etc.) and economic activity development. This leads to certain challenges like varying socio-demographic characteristics of the territory; differences in biowaste generation for different activities in the area and varying habits/practices of different economic actors; the time and distance of collection routes and their frequency.
- Different typologies of areas (urban, rural etc.) would most probably require different approaches for biowaste collection. Only 1/3 of the population is urban.
- Lack of support to the private sector to develop novel circular products and lack of regulation(s) to foster the private sector to implement circular principals. To address this issue, the Climate Pact was developed in June 2023 to engage the private sector, NGOs and institutions, to contribute to the Climate Neutrality Goal 2030. More than 100 partners signed the Pact. Guimarães is also committed to a rapid massive engagement dedicated to Circular Economy (Source: Guimarães 2030 website).
- As a result, there is a lack of products in the market that can be procured (as part of Green Public Procurement): lack of circular products in the private sector & industry (e.g. eco-labelled products) that the municipality can buy and use.
- Lack of legislation that can benefit/reward citizens who implement the principals of circularity. To address this challenge, Guimarães implemented the SAYR strategy (starting from January 2024) that reduces the waste taxes for those who source bio waste.

More specifically, Guimarães is facing the following challenges in the design and implementation of the CSS:

- Financial hurdles: the estimated implementation cost of the CSS components focusing on biowaste collection and valorisation is 1.200.000€ - 500.000€ is already secured; 700.000€ still needs to be secured (300.000€ is for building a mini plant to process green waste; the remaining 400.000€ is required to buy mini-containers for the door-to-door system (for households to separate their biowaste), bigger containers for the restaurants and institutions (hospitals, universities, schools), bags for compost separation, and two new trucks.
- Lack of support from parish councils: to understand how to mobilise and obtain support of all parish councils in Guimarães. For example, to address this challenge, the municipality organises yearly meetings with parish councils, to present and discuss the progress all together.
- Lack of citizens' awareness and engagement: separate biowaste collection is obligatory from 2024 challenges with understanding how to communicate and mobilise different population groups and develop communication strategies that address all 156 849 inhabitants.
- Green Public Procurement implementation: since Feb 2023 there is a GPP strategy on a national level, which Guimaraes is now transposing to a local strategy. The remaining challenge is engagement of all departments within the City Council (internal) and of relevant external stakeholders. Good practices/case studies of how this was done elsewhere would be useful.

Note: Guimarães currently participates in a Horizon PCP (Pre-Commercial Procurement) project – CircularPSP, which will deliver municipal public service platforms for the circular economy integrating multiple strategic digital technologies to facilitate a more decentralised and agile development whilst modernising the operation of public administration.

- Difficulty to monitor/assess the impact of the CSS and its different components: defining relevant KPIs and collecting data for monitoring progress. Three KPIs are being used at the moment:
 - Population covered;
 - Frequency of bag collections;
 - Waste weight (amount of waste collected).



- Mapping the local agricultural sector and finding ways to mobilize local farmers. To address this, local farmers were mapped as part of the 360.come project. Currently a visualization platform is being developed to engage local stakeholders.

2. The implementation journey [regularly updated]

Current level of progress on CSS

This section is drafted by CSO with the information already available from the Needs Assessment and based on the latest exchanges with the Pilot. It describes the current situation in terms of development of CSS. It situates the Pilot within the 3 Step approach of the CCRI-M to determine the recommended next steps. Note: In some cases, these steps may be more critical than others. As such, these steps should be seen as a guide which can be adapted according to the local context e.g., some steps might not be needed or the order might differ.

Table 1 Checklist for the CSS (already available from Needs Assessment)

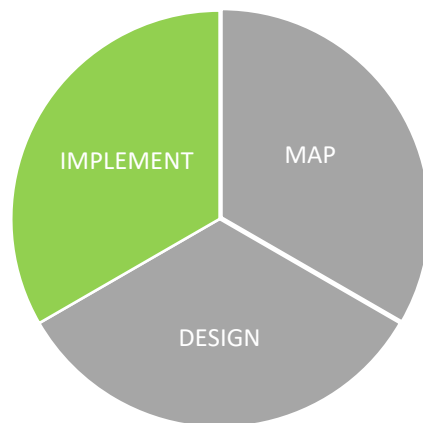
Stage: MAP	Status
Carried out a mapping of all relevant sectors/value chains potentially impacted by the CSS	Completed
Undertook a mapping of main flows of materials and waste in the territory	In progress
Identified existing (local, national and supra-national) policies supporting the CE transition	Completed
Mapped and identified key stakeholders across relevant groups	Completed
Identified good/best practices that you can replicate	Completed
Stage: DESIGN	Status
Assigned responsibilities among different departments/actors	Completed
Formulated a stakeholder engagement plan	Completed
Consulted with all the relevant stakeholders to gather their input	In progress
Developed mechanisms to continuously include the relevant stakeholders in the process	In progress
Identified intervention areas and their levers/barriers	Completed
Assessed the possible trade-offs between different sectors/value chains relevant for CSS	Planned but not started
Identified/developed indicators to measure the progress ⁴	In progress
Identified milestones and timelines to achieve them	Completed
Develop a CSS action plan	In progress
Stage: IMPLEMENT	Status
Developed a financial/business plan or strategy	In progress

⁴ This action would be done in the framework of the CCRI-SAT.



Identified funding opportunities for the actions/projects	In progress
Applied for/acquired funding for the actions/projects	In progress
Collected/identified data to populate the indicators identified in the previous step ⁵	In progress
Evaluated progress using the indicators identified in the previous step ⁶	In progress
Evaluated the actions (you know what worked/did not work and why)	In progress
Made adjustments and improvements to the actions/measures based on the evaluation	Planned but not started
Communicated the findings to the relevant stakeholders	In progress

Based on the table above, Guimarães is considered to be at the **Implementation** stage.



Progress towards goals

Link to SAT: If available, please include a link to the SAT, as soon as available.

⁵ The SAT will provide an Accompanying Guidance Document including information on collecting data.

⁶ This action would be done in the framework of the CCRI-SAT.



Planned actions for the next period

This section will be drafted by the Pilot with the guidance from CSO. It builds on the previous sections and lists concrete actions to take in order to progress in the CSS taking into account the CSO recommendations.

Please list in the table below priority actions that you will focus in the next 6 months (until the next review period). These actions may be based on the recommendations of the CSO and take into account the current level of progress of the CSS. Where possible, please link the actions to the CCRI-M phases and action areas. Write down key sub-actions in order to complete/start the process. Indicate the resources needed and outputs/outcomes.

Table 2 Overview of the next steps/priority actions

CCRI- M phase	CCRI-M action area	Actions	Planned sub-actions to start/complete	Responsible bodies/person for implementation	Timeline	Resources needed	Outputs/outcomes/deliverables
[Identify the <u>CCRI-M</u> phase(s) that the action relates to]	[Identify the <u>CCRI-M</u> action area(s) that the action relates to]	[Action 1] Examples: Carry out a mapping of all relevant sectors/value chains willing to participate to develop a material library	[Identify sub-actions in order to complete/start the process] Example: Prepare a survey and send it out to identified stakeholders	[Identify who is responsible for the action]	[Indicate start and end date of the action (if available)]	[List the main human and financial (e.g. costs in €) resources, if applicable]	[Identify key outputs/outcomes/deliverables] Example: Stakeholder list willing to participate to the material library Estimation of quantity available for reuse in the material library
Example: Design	Example: Analyse potential stakeholders						
Implement	Stakeholder engagement - Implementation	Implement awareness and educational actions	360.com project intends to initiate behavioural changes, making use of innovative communication strategies and seeking to demonstrate that	Guimarães Municipality, Landscape Laboratory and Vitrus Ambiente public company	Sep 2022 – Nov 2023	Funded by Environmental Fund (FA), Portuguese Ministry of Environment Engaged stakeholders:	Reduction of landfill waste Waste recovery Reduction of the ecological footprint Reduction of food waste (measured by comparing to previous years)

			<p>healthy eating, food waste, proximity consumption, the transition to a circular economy and the promotion of good land use.</p> <p>Planned measures for nearest months:</p> <ul style="list-style-type: none"> -Develop & implement environmental education actions in the school community; -Assess chemical safety of food produced in community gardens in Guimarães; -Map local producers and identify best practices and recommendations. 		<p>Apr – Sep 2023</p> <p>Jan – Sep 2023</p> <p>Nov 2022 – Aug 2023</p>	<p>Landscape laboratory, CIIMAR - Interdisciplinary Center for Marine and Environmental Research, HoReCa channel (local restaurants A Cozinha and Cor de Tangerina, project O Chef em Tua Casa)</p> <p>Technical team (Environmental Education Coordinator, Scientific Coordinator and 2 Environmental Education Technicians) from Landscape Laboratory and 3 consultants from partner entities.</p>	<p>Citizens' environmental awareness</p> <p>Production of digital billboards</p> <p>eBook production</p> <p>Production of videos and spots</p> <p>Creation of a hologram for use in awareness sessions</p>
			<p>Spring Party 2023 “Healthy and Sustainable Food”:</p>	<p>Guimarães Municipality, and Landscape Laboratory</p>	<p>March 25th-26th</p>	<p>Engaged stakeholders: Landscape laboratory; City</p>	<p>Citizens' environmental awareness</p>

			<ul style="list-style-type: none"> - Re-food stall throughout the event; - RRRICLO stand throughout the event; - lecture “Composting: valorization of organic waste” ; presentation of the “360.come project”. 			<p>Council of Guimaraes; Resinorte; Vimagua; Vitrus Ambiente; Re-food; Curtir Ciência; Serralves; Adega Cooperativa de Guimarães; Raúl Brandão Library, and local organic producers.</p>	
Implement	Stakeholder engagement - Implementation	Distribute containers for a separate collection of bio-waste among establishments from HoReCa channel in the selected 9 parishes	NA	Guimarães Municipality, Landscape Laboratory and Vitrus Ambiente public company	Dec 2022- September 2023	Engaged stakeholders: City Council of Guimaraes, Landscape laboratory; Parish councils; Vitrus Ambiente, HoReCa channel	HoReCa establishments in 9 parishes (1547 establishments of HoReCa channel – 72% of all territory) are involved in a separate collection of bio-waste
		Distribute containers for a separate collection of bio-waste among households in the selected 9 parishes	NA	Guimarães Municipality, Landscape Laboratory and Vitrus Ambiente public company	Feb – Aug 2023	Engaged stakeholders: City Council of Guimaraes; Landscape laboratory; Parish council;	Households from 9 parishes (21168 households – 35% of all territory) are involved in a separate collection of bio-waste, and Green Brigades

						Households; Vitrus Ambiente	
		Meetings with presidents of parish councils	NA	Guimarães Municipality	Feb-Apr 2023 (in 9 parishes) June-Sept 2023 (in the remaining parishes)	Engaged stakeholders: City Council of Guimaraes; Parish councils, Vitrus Ambiente	Establish parish councils as a point of contact with the local community
Implement	Stakeholder engagement - Implementation	Communication campaign	Communicate about the schedule of collection and separation of bio-waste from other municipal waste through: <ul style="list-style-type: none"> - social media - notice boards in the parish council offices - publicity at public transport stations 	Guimarães Municipality, Landscape Laboratory and Vitrus Ambiente public company	Feb – Aug 2023	Engaged stakeholders: City Council of Guimaraes; Parish councils, Landscape laboratory; Vitrus Ambiente	Households and HoReCA actors in targeted parishes (9 in total) are aware of the schedule
			Run a feedback campaign (trial run): users with unsatisfactory indicators will find booklets in their mailboxes with	Guimarães Municipality, Landscape Laboratory and Vitrus Ambiente public company	Nov – Dec 2023	Engaged stakeholders: City Council of Guimaraes; Landscape laboratory and Vitrus Ambiente	Monitor the quality of waste separation by households and improve the quality of collected bio-waste

			reminders about the correct separation of bio-waste from other MSW; also for those who have containers but are not using it				
Design	KPIs and targets definition	Define KPIs for the evaluation of the CSS over time	Collect data on the amount of bio-waste generated by different users with containers	Guimarães Municipality, and Vitrus Ambiente public company	Ongoing	Engaged stakeholders: City Council of Guimaraes; Vitrus; Schools; Households; HoReCa channel	Monitoring collected data and adjusting where needed
			Define a preliminary set of KPIs based on the collected data (collection & valorisation)	Guimarães Municipality, Landscape Laboratory and Vitrus Ambiente public company	Nov 2023	Engaged stakeholders: City Council of Guimaraes	Make a public platform that shows targets and what Guimaraes have already achieved
Design	Assess and define a CSS solution	Establish GPP to support local CSS	Map local services	Guimarães Municipality, Landscape Laboratory	April 2023	Please insert	Define Green Public Procurement strategy
			Develop local GPP strategy & get ready for implementation	Guimarães Municipality, Landscape Laboratory	April – Dec 2023	Please insert	Define Green Public Procurement plan
Implement	CSS implementation	Implement composting strategy	Purchase compost bins for community composting (9 villas)	Guimarães Municipality, Landscape Laboratory and	April and May 2023	Engaged stakeholders: City Council of Guimaraes; Parish councils;	Done

				Vitrus Ambiente public company		Landscape laboratory	
			Placement of community composters	Guimarães Municipality, Landscape Laboratory and Vitrus Ambiente public company	June – Nov 2023	Building with the community Engaged stakeholders: City Council of Guimaraes; Parish councils;	Reducing biowaste
			Reinforce number of community composters (10)		May – June 2024	Vitrus Ambiente; Citizens; Landscape laboratory; Green Brigades	
			Communication and engagement (all parishes)	Guimarães Municipality, Landscape Laboratory and Vitrus Ambiente public company	Mar – Nov 23	Engaged stakeholders: City Council of Guimaraes; Parish councils; Citizens; Landscape laboratory; Green Brigades, CVR	Citizens' environmental awareness
Design	Assess and define a CSS solution	Re-assess intervention areas and refine the CSS solution	Map potential end-users of recycled biowaste products (compost, digestate, etc.) in the area of Guimarães, considering	Guimarães Municipality,	Begin in Sept - Nov 2023	Engaged stakeholders: City Council of Guimaraes; Landscape laboratory and CVR - Centre for	Research and develop a strategy

			all sources of biowaste generation.			Waste Valorisation	
Design	CSS enlargement	Create a communication strategy for the enlargement area (12 parishes)	Door-to-door; Info-mail; Parish council meeting	Guimarães Municipality, Vitrus Ambiente	Begin in April 2024	Engaged stakeholders: City Council of Guimaraes; Landscape laboratory	Citizens’s environmental awareness. 20 Parishes will be covered by the biowaste collection by the end 2024 (42% of all parishes)
Implement	CSS enlargement	CSS enlargement	Enlarge the collection to more 12 parishes	Guimarães Municipality, Vitrus Ambiente	May – December 2024		
Implement	New Recycle Credit System	Create a benefit for those who source biowaste	Benefit for those who source biowaste - tax reduction (households)	Guimarães Municipality, Vitrus Ambiente	Jan 2024		50% of variable waste tax reduction
Implement	Stakeholder engagement & Climate Justice	Enhance climate justice by targeting education campaigns at locations with poorer socio-economic conditions	Develop education activities targeting circular economy, biowaste and short-consumption chains	Landscape Laboratory and ProChild Collab	TBC		
Design & Implement			Apply for the CCRI support scheme to potentially receive support in stakeholder engagement and mapping (in relation to engagement of local farmers). If successful, that will provide a great support towards	Guimarães Municipality, Landscape Laboratory	October 2024 – December 2024		

			some of the actions related to engagement of farmers outlined below.				
Map	Map main flows of materials and waste in the territory	Agriculture waste flow map with some early adopters		Guimarães Municipality, Landscape Laboratory	Q1 – Q3 2025		
Implement	Stakeholder engagement	Contact farmers (from the list) to gather data from their on-site composting habits	Create a waste-flow/composting habits database	Guimarães Municipality, Landscape Laboratory and Vitrus Ambiente public company	Q1 – Q3 2025		
Implement	Symbiosis solution	Select up to 3 early adopters from the farmers database (based on data collected by the LL under the 360.come project)	Test the use of locally produced composting/fertilizer Target local wine producers	Guimarães Municipality, Landscape Laboratory and Resinorte	Q1 – Q3 2025		
Implement	Circular solutions	Marketplace/Platform – Farm to Fork	With data from the 360.come project a platform will be created to enhance farm-to-fork consumption in Guimarães	Guimarães Municipality, Landscape Laboratory and Resinorte	TBC		

Implement	Circular solutions	Meet with other local stakeholders to study other circular solutions in the territory for biowaste	Identify EWR codes and study potential valorisation alternatives	Guimarães Municipality, Landscape Laboratory; Waste Valorization Centre (CVR)	Q1 – Q3 2025		
Design/Implement		Identify together with EIB C3 if one of their programmes is suitable to advance the CSS further. An alternative is that Guimaraes might focus on another area (e.g., textiles)		Guimarães Municipality, Landscape Laboratory, EIB C3, CCRI-CSO	Ongoing		

Status of the Stakeholder Engagement process

This section is drafted by the Pilot with the support of the CSO.

Stakeholder engagement plan is being developed

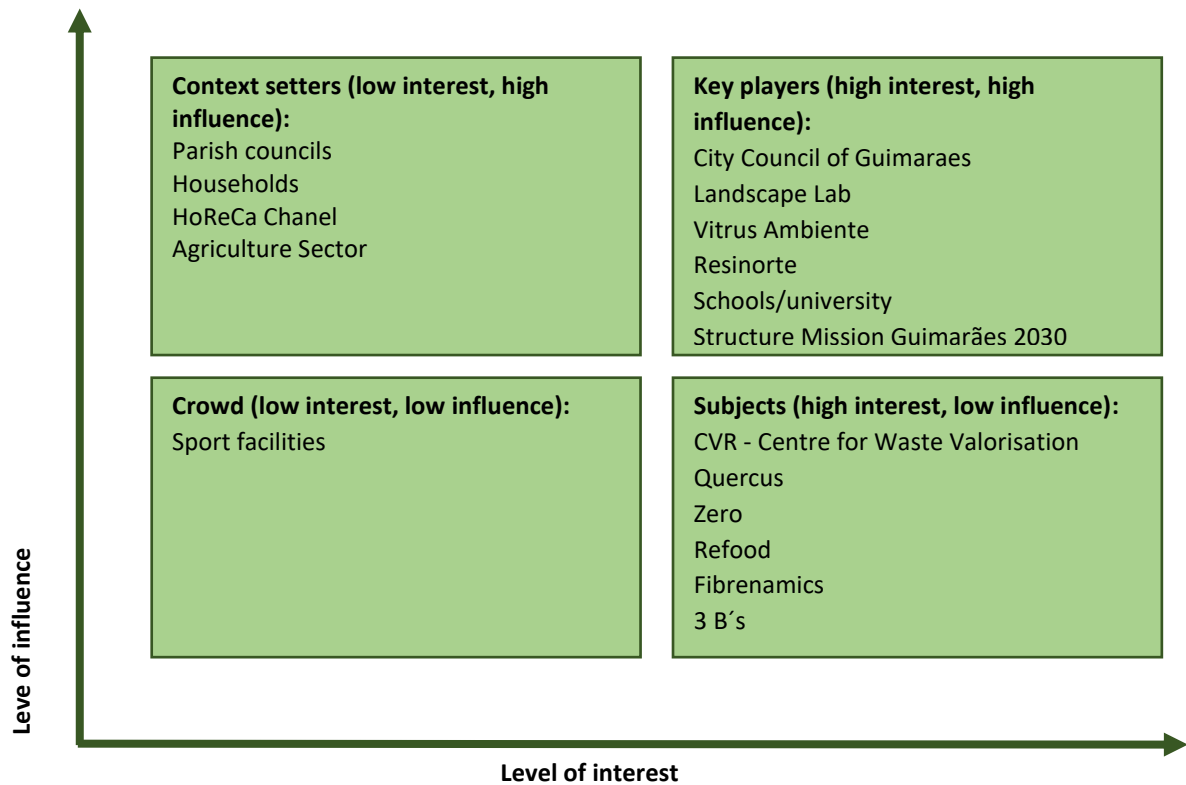
The stakeholders to be engaged with the CSS are the following:

Table 3 Stakeholder list

Type of stakeholder	Name of the Institution	Are they aware of this CSS and invited to collaborate?
Public administration and local entities	City Council of Guimaraes Parish councils	Yes
Industry& businesses	Vitrus Ambiente EM, SA Resinorte HoReCA channel Retail Municipal Market Agricultural sector (interested in compost/fertiliser) Guimarães Marca	Yes
Civil society	Households Schools/university/sport facilities	Yes
Academia/Research	Landscape Laboratory Structure Mission Guimarães 2030	Yes
NGOs	ReFood; Zero National Association, Quercus National Association, Ave Association	Yes
Technological organisations	CVR - Centre for Waste Valorisation; 3B's Biomaterials, Biodegradables and Biomimetics Research Group; The Fibrenamics Association - Institute for Innovation in Fiber and Composites Materials	Yes
Other		

If possible, map the stakeholders based on their interest in/influence on the CSS in the following table:
Figure 1 Stakeholder mapping (optional)

If not clear, please contact your companion.



Funding/finance strategy

This section is drafted by the Pilot.

Biowaste Guimarães Plan with finance strategy until 2030:

<https://rrrciclo.pt/wp-content/uploads/2022/09/Plano-de-Gesta%CC%83o-RRRCiclo.pdf>

If there is no information about what funds/finance will be mobilised yet, please skip this section

Table 4 Capital Planning

Action	Implementation costs	Possible sources of funding/financing
Engagement and communication	300 000,00€	
Containers to collection biowaste	472 390,00€	
2 electric trucks for collection	750 000,00€	
Research and development	350 000,00€	
Green waste composting plant	400 000,00€	
Mapping and research farmers	50 000,00€	

Planned support for the next period

This section will be co-drafted by the Pilot and the CSO. It proposes certain entry points/possible matches based on identified needs to carry out the actions above and to meet specific objectives of the CSS. It also looks at what type of support is expected from the CCRI (incl. the CSO and possible support from Projects & Associated Partners) and how the Pilot is planning to make use of the support provided.

Table 5 Overview of Needs and Offers

Action/sub-action (same as [Planned actions for the next period])	Challenge/support need	Pathway	Main focus (why is this relevant?)
[To be completed by the Pilot]	[To be completed by the Pilot]	To be completed by CSO with one of the types indicated in the CCRI support services menu ⁷	[To be completed by CSO]
Support with defining meaningful KPIs for the defined CSS & monitoring		-SAT (once available) - BIOMODEL4REGIONS CCRI-P (D3.2, Handbook on policy monitoring system and key performance indicators, DL for submission: 31/10/2023)	
Best practices on valorising biowaste in a local context to enhance the symbiosis and connections with industry & private sector		PC is on a look-out for relevant cases/knowledge/projects etc.	
Peer learning/good practices on effective citizen engagement in a similar context	Challenges to mobilise and engage different groups of citizens	-FRONTSHP CCRI-P (citizen engagement plan) -TREASURE CCRI-P (stakeholder engagement CSS)	
Good practices on how to engage farmers with a low level of environmental literacy and low trust levels.	A lot of small farmers in the territory with low environmental literacy. They also lack trust to the authorities. That is why they are not willing to share data etc. They need to know what is their benefit.	-Pilot Companion (Knowledge) - CCRI support scheme (tbc)	
Support in identifying relevant funding opportunities: to create potential new projects with local farmers AND to create projects dedicated to topics targeting	Support with implementation of bioeconomy projects in the territory	-Pilot Companion (identifying & sharing relevant funding opportunities) -Other pathways: EIB C3 (tbc)	

⁷ Final version to be made available soon.



circularity & climate change			
GPP: peer learning/good practices on how to raise awareness & engage internal and external stakeholders	Good practices/peer learning on how to engage all departments within the City Council (internal) and of relevant external stakeholders (to enable solutions for the needs, cooperation with local industries and private sector)	-Pilot Companion (Knowledge): ProCirc project (materials on organisational change) -Other Pilots/Fellows, e.g., Asker (developed guidelines and could maybe share how they engaged with stakeholders for implementation); Gothenburg (mention they have experience); Berlin (fellow; practice in green public procurement, started in 2012); Amsterdam (might have some good examples as well) (tbc)	

Annexes

Annex 1: Updated definition of CSS

A Circular Systemic Solution (CSS) is defined as (in the CCRI methodology¹):

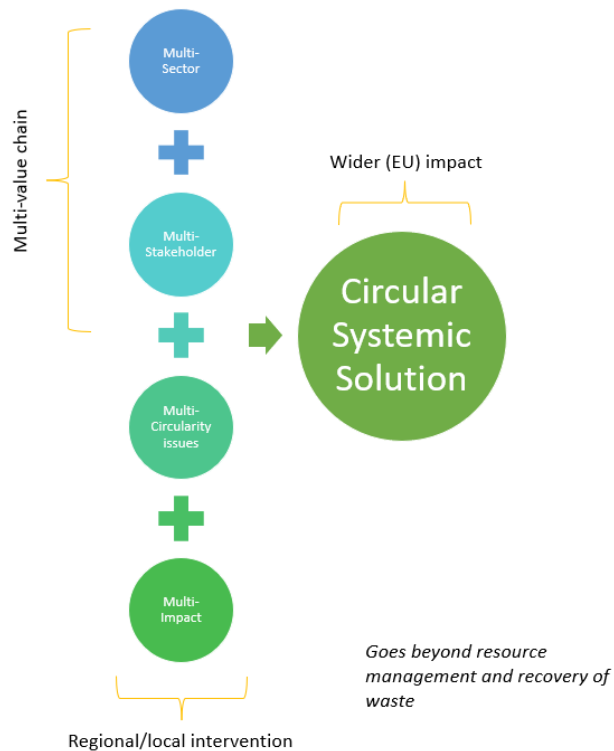
A Circular Systemic Solution is a project aiming to achieve an overall net sustainability added value in a local context by applying innovative circular models. These projects are holistic and seek to achieve minimal trade-offs. They are systemic in the sense that they involve different actors and value chains, potentially involving more than one level of government and governance, address a variety of circularity issues, and consider all causal factors that may enable or hinder a transition toward the circular economy at local level.

A Circular Systemic Solution is systemic also in its impacts and outcomes, addressing and involving economic, social and environmental aspects. Circular Systemic Solutions should address the major challenge of effectively applying the circular economy concept beyond resource management and recovery in the waste and water sectors.

Let us break it down in simple terms: A CSS is an initiative that goes beyond the ‘traditional’ circular economy solutions, as for example recovery of energy from burning waste oil.

There are four elements that make a CSS (see Figure):

1. Multi-sector
2. Multi-stakeholder
3. Multi-Circularity issues
4. Multi-Impact



Ideally, your CSS has at least 2 selections per element for it to have a wider EU impact.

Multi-sector means that more than one sector is involved (for example, cascading approaches on biowaste for chemicals and cosmetics). **Multi-stakeholder** means that there is a cooperation between different stakeholder groups (for example, public authorities, industry and citizens). When you combine the multi-sector and multi-stakeholder, this means that multiple value chains are involved.² **Multi-Circularity** issues means that you tackle more than one issue for the implementation of circularity (for example, different circular business models, regulatory aspects, innovative governance strategies)[...]). Lastly, **multi-impact** means that the solution you choose has several social, economic and environmental (positive!) impacts on your local territory (for example, job creation with reduction of CO₂ emissions). The sum and combination of elements mentioned above will form a **Circular Systemic Solution**. The CSS has a domino effect: you act at your local level but you will have a positive impact at national and European level – even if simply showing the right example.

Reality of things, it might be challenging in our short time of the CCRI to achieve all elements of the CSS.

Annex 2: More details about the CSS

The CSS of Guimarães targets implementation of the following activities on the territory: (1) separate biowaste collection, (2) valorisation of the collected biowaste, (3) food waste prevention activities, and (4) awareness raising campaign. Each activity is described in more details below.

1. Separate biowaste collection

Implementing separate biowaste collection is the primary objective of the Action Plan for Biowaste. It follows a 3-phase methodology. The 1st phase intends to cover 40% of the population by the end of 2023, the 2nd – 48% of the population by the end of 2024 and the 3rd – 100% of the population by 2028 (48 parishes). These targets cover households, HoReCA and the private sector. Most biowaste will be collected using a door-to-door (DtD) system, and in urbanized areas with high population density there will be installed additional road/street containers.

In more detail, the methodology is focused on:

- a) Separate collection & treatment at source through community and home composting.
- b) Separate collection by DtD system (households, private sector).
- c) Separate collection in the HoReCA channel (incl. from school canteens and canteens located in industrial sites).
- d) Separate collection from other non-domestic users (schools, hospitals).
- e) Separate collection of green waste by appointment.

Apart from this, the CSS also considers biowaste from the agricultural sector. This is an important sector as 33% of land in Guimarães is used for agricultural activities. The main agricultural activities include growing potatoes, blueberries, vineyards, vegetables, asparagus and kiwis. There are also small-scale farmers.

2. Valorisation of the collected biowaste (organic and green waste)

Valorisation of the collected organic and green waste is considered in the following ways:

- a) Organic waste generated by households is used to produce compost for private gardens (home composting).
- b) The biowaste collected by the municipality (households, HoReCA, private sector, non-domestic users) is sent to a mechanical biological treatment plant where an organic fertilizer is produced – <https://www.egf.pt/media/jtvpb2fz/fertibom-ficha-do-produto.pdf>. It is certified for certain agricultural activities like growing grapes for wine making. The fertilizer is currently transported and sold to farmers in the south of Portugal. However, Guimarães is currently developing a strategy that aims to target local farmers as well.
- c) The green waste generated in public areas (cemeteries, forest and other green areas; 1400 ton/year) and in households (with gardens) is collected by the municipality and is mainly used to produce compost for public green areas (1250 ton/year). Furthermore, 1% of the green waste (~100 ton/year) is submitted to an energetic valorisation process to heat boilers in schools. The remaining 50 ton/year is sent to a mechanical biological treatment plant.
- d) Agricultural sector: Biowaste composting from small farmers started in 2014, and it is used directly on the farmers' land. Characterization of food loss and food waste coming from the agricultural sector is considered to be an important first step in understanding how to address the issue of biowaste coming from this economic sector. To understand and explore how this biowaste can be valorised for the use in agriculture and/or other sectors will be addressed in the coming period. Currently, some of small farmers sell their products in the public market for fresh food where the biowaste is collected by the municipality.



Food waste prevention activities are also considered. The municipality of Guimarães has a dedicated person in the team working on the topic of food waste prevention. Food waste prevention activities are targeted at the following actors: public schools, university of Minho (programme for food prevention with students). Furthermore, starting from 2023, the municipality can include relevant criteria in their GPP conditions.

As part of the CSS, the municipality aims to develop and implement **awareness raising activities**:

- Awareness raising campaign on a local TV channel & regional radio channels + YouTube channel targeting citizens.
- 360.come project targeting schools, universities and industries (canteens) (one year project)
Specific goals for the 360.come project include:
 - Reduction of waste and increase of circularity in the activity of public and private canteens
 - Assessment of the chemical safety of the food produced in the Community Garden
 - Mapping of local producers and identification of good agricultural practices
 - Creating an educational and awareness program
 - Waste valorisation in educational kits

The Guimarães Action Plan for BioWaste and the above-mentioned activities are being implemented by a Task Force established under the framework of the Governance Ecosystem Guimarães 2030, linking the City Council, academia, and private businesses. The Task Force integrates three domains – Innovation, Waste and Resources, Citizens’ awareness and mobilization. The task force is led by the Head of Urban Services and Environmental Division.

The Task Force is comprised of a multidisciplinary team and includes several institutions and civil society: Landscape laboratory of Guimarães (R&D Institution + Coordinator of The Municipal Educational Program for Sustainable Development), CVR - Centre for Waste Valorization (Public Utility Entity and Technological Interface Center), Vitrus Ambiente, (municipal waste collecting company), RESINORTE (regional waste management company), private sector, HoReCA channel, Mission Structure for Sustainable Development, schools, Refood association, Green Brigades (groups of volunteers that have an yearly action plan to implement field actions towards environmental sustainability), local administration units known by parishes, PEGADAS, local ENGO’s.



Annex 3: More details on the context for CSS

In 2014, Guimarães started showing visible signs of a more practical and evident approach to Environmental challenges by creating the “Guimarães 2030 Governance Ecosystem” (GGE), an initiative that seeks to bring together the public sector, universities, non-profit associations and citizens. This holistic and participatory model promoted sustainable policies and improved citizens’ quality of life. by integrating a top-down and bottom-up approaches into a multi-scale cross-sectoral framework using participatory methods.

Recognizing the importance of evidence-based decision-making for deliver the vision of one city’s planet, Guimarães' municipality created, in 2014, the innovative Landscape Laboratory (LL), placing knowledge, science, and technology at the forefront of environmental management. At Landscape Laboratory environmental challenges are studied and interpreted. Through citizens science projects and co-creation programs improvements are made leading to a more resilient territory. In addition, one of the crucial steps of this journey was the municipal Ecological Footprint and Biocapacity calculation. Results showed us the essential clusters where we needed to act. For food cluster, we defined specific policies to reduce our municipal footprint, achieving the needed equilibrium for a one city’s planet. Through a bottom-up approach, an individual footprint calculator was also developed, allowing citizens to calculate their ecological footprint. This tool is also part of PEGADAS, and a way to raise-awareness and to measure the real impact of our environmental education and citizens’ science projects. PEGADAS is an environmental education programme promoted, since 2015, by the Landscape Laboratory and the Guimarães’ Municipality in collaboration with several local, national, and European partners. Every year, PEGADAS reaches 20 thousand students with more than five hundred activities in all schools. Besides being an educational programme, PEGADAS is an empowerment tool, allowing learners to have a voice and share their thoughts and ideas, making them successful change leaders. Nurturing eco-citizens through PEGADAS is highly successful. Shifting from a linear to a circular economy is essential for decarbonization and staying within planetary boundaries. It was the reason that Guimarães created the RRRCICLO strategy for circular economy, and has the support of a task force engaging several partners from civil society, Academia, and local and national institutions. Under the Governance Ecosystem Guimarães 2030, linking the City Council, Academia, Citizens and Private business, a task force was set to integrate four domains – Innovation, Waste and Resources, Citizens’ awareness and mobilization. The task force is led by the municipality, and includes a multidisciplinary team comprising members from several institutions and civil society. In this matter Guimarães created a focus group to bioeconomy to demonstrate circular innovative technologies, for waste management, in particularly to biowaste.

