



Ayuntamiento
de Murcia

MURCIA'S CIRCULAR ECONOMY STRATEGY

Action Plan

Together, walking
towards circularity

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EXECUTIVE SUMMARY

As remarked by the Executive Vice-President of the European Commission Frans Timmermans: “The circular economy should be the economic model of the future, not just for Europe but for the world at large”. Therefore, the present document’s main goal is to adapt our municipality’s economy to ensure a sustainable future, by modifying consumption, product and waste management patterns; strengthening companies’ competitiveness; protecting the environment and reinforcing citizen participation.

Murcia City Council’s journey towards sustainability began in 2015 with the process of strategically reflecting on how to define the Urban Model. This mission entailed the creation of a multi-level governance model sustained by key stakeholders (citizens, social council and economic and social agents); and characterised by focuses of action that have facilitated a participatory vision of citizenship, the smart management of the city and a commitment to foster coordination amongst administrations. Thus, the Murcia 2020 Strategy was born, which constituted the grounds for the development of the Murcia Urban Agenda 2030 whose main objective is to achieve a sustainable urban development.

The City Council’s firm commitment to circular economy was consolidated with the publication of the Circular Economy Assessment Report for Murcia, in 2020 (Ayto.Murcia, 2020) and it has continued with the elaboration of the Action Plan and its corresponding Monitoring Plan, thus conforming the Murcia’s Circular Economy Strategy (MCES).

Consequently, the main objective of the present document is to devise the MCES, and that this Strategy serves as a guide to turn Murcia into a circular municipality. The MCES is articulated through the actions, which aim the fulfilment of the 12 circularity goals proposed for 2030. These objectives are in alignment with the rest of the local, regional and national strategies, such as the Sustainable Energy and Climate Action Plan (SECAP), the Spanish Strategy of Circular Economy and the new Action Plan for Circular Economy, among others.

The MCES has been based on the work carried out in the Assessment report and it has been developed by means of the following stages: Information Gathering, Participation and Drafting.

The participation of experts and citizens has been possible due to the creation of 6 circular agoras (one per priority area), 9 personalised interviews to representatives of companies, associations and administrations; and a public survey to the citizens which has been completed by 179 neighbours. After analysing the information received, a circular roadmap composed of 30 actions was designed.

The actions have been defined in order to develop the 22 priority lines identified during the assessment, for each of the 6 focus areas: Consumption, Waste Management, Water Management, Urban Spaces Sustainability, and Mobility and Cross-cutting Policies. Each action has been structured and defined according to the necessity, the scope, the accumulated experience and the benefits that it brings about; including the execution timeline, the success and monitoring indicators, the municipal service responsible for their completion, the target audience, and the external collaborators. The proposed actions have been adapted to the reality of the municipality and they are in agreement with the European policies and legislations in terms of waste, food waste, circularity of the textile and plastic sectors, among others.

“The circular economy should be the economic model of the future (...)”

Frans Timmermans

Executive Vice-President of the European Commission







Focus area	Priority Lines	Actions
 <p>Focus Area Consumption</p>	<p><i>Implementing measures to ensure responsible and proximity consumption</i></p> <hr/> <p><i>Reconnecting the city with its surroundings</i></p> <hr/> <p><i>Minimising food waste</i></p> <hr/> <p><i>Encouraging reuse and repair</i></p>	<p>Campaign to encourage responsible and local consumption</p> <p>Introduction of circular and sustainable guidelines for events and celebrations</p> <hr/> <p>Ecodesign for the creation of circular environments</p> <hr/> <p>Food waste assessment</p> <hr/> <p>Creation of ecosystems to extend product lifetime</p>
 <p>Focus Area Waste Management</p>	<p><i>Promoting the separation and selective collection of all the fractions at source</i></p> <hr/> <p><i>Optimising the management of the Construction and Demolition Waste (CDW)</i></p> <hr/> <p><i>Encouraging ecodesign, reusing, remanufacturing and recycling</i></p>	<p>Organic waste selective collection (bio-waste)</p> <p>Measures to reach the objectives of preparing for reusing and recycling the municipal fractions</p> <hr/> <p>Activities to promote the correct management and assessment of the Construction and Demolition Waste</p> <hr/> <p>Circular Economy Fair</p>
 <p>Focus Area Water Management</p>	<p><i>Promoting the sustainable management of rainwater drainages</i></p> <hr/> <p><i>Reusing water from different sources and for different uses</i></p> <hr/> <p><i>Water and energy efficiency and the ICT</i></p>	<p>Collection and reuse of storm rainwater and groundwater</p> <hr/> <p>Reusing wastewater to irrigate parks, gardens and the orchard</p> <hr/> <p>Development of a Water Management Ordinance</p>
 <p>Focus Area Sustainability of Urban Spaces</p>	<p><i>Increasing energy efficiency</i></p> <hr/> <p><i>Increasing resilient, self-sufficient, sustainable, green spaces and improving their connectivity</i></p> <hr/> <p><i>Optimising the urban system</i></p>	<p>Creation of "solar neighbourhoods"</p> <p>Local plan for the development and implementation of renewable energies</p> <p>Inventory of degraded areas and recovery proposal from a point of view of interconnectivity</p> <p>Sustainable pruning and crop residue management plan</p> <p>Development of a set of sustainable guidelines for parks and gardens</p> <p>Elaboration of the Green and Blue Infrastructure Strategy</p> <p>15-minute neighbourhood/district pilot</p>
 <p>Focus Area Mobility</p>	<p><i>Prioritising sustainable and low impact transportation: walking, sustainable personal mobility vehicles, collective transport</i></p> <hr/> <p><i>Organising the space in order to encourage sustainable mobility</i></p>	<p>Local vehicle-sharing platform</p> <p>Package of measures to promote the acquisition and use of sustainable vehicles</p> <hr/> <p>Establishment of low-emission zones</p> <p>Maximisation of the use of new technologies for a sustainable mobility</p>
 <p>Focus Area Cross-cutting Policies</p>	<p><i>Coordinating/aligning Strategies/Plans/Initiatives</i></p> <hr/> <p><i>Capitalising circular actions as examples of good practices</i></p> <hr/> <p><i>Developing effective, current and continuous public participation strategies</i></p> <hr/> <p><i>Developing training and/or awareness-raising activities</i></p> <hr/> <p><i>Developing municipal funding calls to boost circular economy projects</i></p> <hr/> <p><i>Promoting Sustainable and Innovative Public Procurement</i></p> <hr/> <p><i>Improving the access to information and monitoring</i></p>	<p>Creation of the web platform "Circular Murcia"</p> <hr/> <p>Creation of a Hub of disruptive, circular and innovative enterprises</p> <hr/> <p>Adoption of innovative participatory approaches</p> <hr/> <p>Development of the circular awareness-raising campaign</p> <hr/> <p>Development, identification and visualization of funding calls for circular economy projects</p> <hr/> <p>Development of the municipal Sustainable Public Procurement Manual</p> <hr/> <p>Measures to improve the access to information and its use, as well as to increase information availability</p>

Table 1. Focus Areas, Priority Lines and Proposed Actions





1.

**INTRO-
DUCTION**

In the year 2050, approximately 75% of the world's population will live in cities, where 75% of the natural resources are consumed and 50% of global waste is produced, along with 80% of the greenhouse gas emissions (Ellen MacArthur Foundation, 2019). These numbers result from a linear economic model of consuming, using and wasting which is obsolete and must be transformed.

The change is necessary and it must be circular. A transition process towards a circular economy where the value of the products, the materials and the waste is retained in the production cycle for as long as possible; and a transition process that reduces waste generation and the impact on the ecosystems to the minimum; is the only possible way to achieve a sustainable, low-carbon, resource-efficient and competitive economy (European Commission, 2020b).

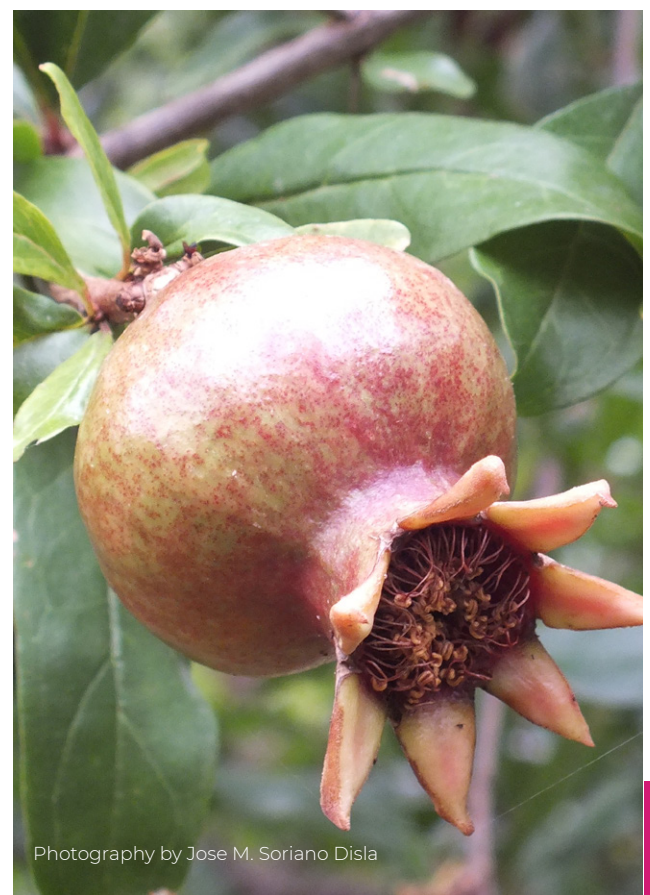
The way to a sustainable economy is led by the 2030 Agenda presented by the United Nations in 2015, which includes 17 Sustainable Development Goals (SDGs) among which circular economy is presented as a priority and essential area for their attainment. At the European level, The Commission adopted its first circular economy Action Plan in 2015. The new Action Plan, adopted in 2020, is one of the main pillars of the European Green Deal, considered the new European agenda for sustainable growth (European Commission, 2019). With these initiatives, the Commission invites the EU institutions and organisations to support and actively contribute to its application.

Member States are updating their national strategies and plans in terms of circular economy, following the principles and the ambition of the European Action Plan and the 2030 Agenda. This is the case of Spain, which sets the bases for boosting a new production and consumption model with the recent publication of the Spanish Circular Economy Strategy 2030 (Gobierno de España, 2020) and its Action Plan (MITECO, 2021b).

The Autonomous Communities also commit to the transition to circular economy as a driver for sustainable progress through the development of their Regional Strategies. In the Region of Murcia, the reference document is the Region of Murcia's Circular Economy Strategy¹, which has been developed but has not been implemented. Local entities are also carrying out circular mo-

del, especially in the framework of their Urban Agendas. Such models must be expressed with the development and execution of specific plans that, working from an initial pre-diagnosis, tackle the hurdles and use the opportunities to develop specific actions adapted to the local context.

For both, the transition among opposing models to be effective and for the Action Plan to be successful; it is necessary to count on a strategy articulated by means of a clear and simple roadmap. The intention of the Circular Economy Strategy is perfectly described in its definition: establishing a set of rules that aim an optimal decision in each moment. This implies planning, establishing goals, looking into the future with the eyes of the present and being efficient. Thus, it is necessary to define short, medium and long-term goals, and to develop actions that are continuously monitored and updated. It is important to know what to do, but it is equally important to define who will carry it out (and how to achieve it). These are, indeed, the elements that must compose any strategy.



Photography by Jose M. Soriano Disla

1. [https://www.carm.es/web/pagina?IDCONTENIDO=58106&IDTIPO=100&RASTRO=c64\\$m](https://www.carm.es/web/pagina?IDCONTENIDO=58106&IDTIPO=100&RASTRO=c64$m)

2.

GOALS

Based on the previous Assessment study (Ayto. Murcia, 2020), Murcia's Circular Economy Strategy (MCES), which includes the Action Plan and its corresponding Monitoring Plan, has been developed.

To achieve a circular municipality, it is necessary to first define the medium-term goals (2030) (Table 2), which will be attained thanks to the development of the actions framed in the Action Plan that will be monitored in a short-term span (2025), as indicated in the Monitoring Plan. The former revision will include both, the updating of the actions and the goals. Specifically, the objectives of the MCES seek to undertake the following challenges: reducing waste and emissions generation, expanding product life cycle, turning urban spaces into sustainable areas, and raising awareness on the need for a change of model.

However, our vision is enterprising and it even goes further in terms of the development of the municipality that we aim for, in the long-term (2050). By that date, we envision a 100% circular municipality that, among other things, generates high-value products from urban waste, minimises the consumption of single-use products and feeds mainly on proximity products. Likewise, we seek a municipality that approaches or practically achieves climate neutrality; generating energy, mainly from renewable sources. Murcia will deploy a clean, safe and connected mobility and it will enable the reduction of emissions in the industrial sector. It will also reuse part of the water consumed, it will prevent the degradation of Murcian ecosystems and it will keep a green and blue infrastructure that connects neighbourhoods and districts.







<p>Focus Area Consumption</p> 	<p>Decreasing waste generation by 10%</p> <p>Increasing local product consumption by 20%</p>
<p>Focus Area Waste Management</p> 	<p>Preparation for reusing and recycling municipal waste will be increased to a minimum of 60% by weight</p> <p>Selective collection of 60% of bio-waste and valorisation of 90% of it by weight</p>
<p>Focus Area Water Management</p> 	<p>Increasing reused and recovered water/sewage sludge by 10%</p> <p>Decreasing the number of incidents caused by floods by 10%</p>
<p>Focus Area Sustainability of Urban Spaces</p> 	<p>Producing 40% of our energy from renewable sources</p> <p>Increasing the surfaces destined to green spaces by 10%</p>
<p>Focus Area Mobility</p> 	<p>Increasing the use of sustainable transport by 50%</p> <p>Reducing the CO₂ emissions generated by vehicles by 40% (year reference 2007)</p>
<p>Focus Area Cross-cutting Policies</p> 	<p>Increasing public participation by 20%</p> <p>Increasing the number of enterprises that engage in internships on circular economy by 35%</p>

Table 2. Murcia's Circular Economy Strategy's Goals for the Year 2030, Defined by Focus Areas. Year of Reference 2019 (Except when Indicated)

3.

**3. MUCIA'S
JOURNEY
TOWARDS
CIRCU-
LARITY**

Murcia is a vast municipality with a large urban core, 52 districts² and rural and agricultural areas. It represents an important economic engine for growth within the Region of Murcia. The support and adoption of circular principles are expressed as both, great necessities and an opportunity to ensure, among other things, that urban and rural areas develop in parallel and in connection; which will bring about numerous economic, social and environmental benefits.

Murcia City Council's journey towards circularity must be based on a multilevel governance model that involves all the key actors: citizens, social council and economic and social agents. By means of a process of strategic reflection, all the actors must work on the model of circular municipality that we want, which must be integrated in the body of the Urban Murcia Agenda 2030 for a sustainable and circular urban development, in agreement with the sustainable development goals.

Murcia City Council has other sectoral strategies and plans developed in recent years that also address the challenges of the implementation of a circular economy model. In Table 3, such plans and their contribution to the focus areas marked in the present Strategy are presented. Apart from the development and application of the different strategies and plans, Murcia City Council participates in European circular economy projects such as: HOOP³, VALUEWASTE⁴, CITYLOOPS⁵ and LIFE HEATLAND⁶.

In the framework of the international initiatives in circular economy, Murcia has recently (December 2020) become, in addition to Seville, one of the only two Spanish cities to adhere to the circular cities' declaration: 'Circular Cities'⁷, a commitment signed by a group of 35 cities from different countries to continue to move forward in the transition to a circular and sustainable economy.



2. <http://www.murcia.es/web/portal/pedantias>
 3. Proyecto HOOP. <https://hoopproject.eu/>
 4. Proyecto VALUEWASTE. <http://valuewaste.eu/>
 5. Proyecto CITYLOOP. <https://cityloops.eu/>
 6. Proyecto LIFE HEATLAND. <https://heatlandlife.eu/>
 7. Circular Cities Declaration. <https://circularcitiesdeclaration.eu/>

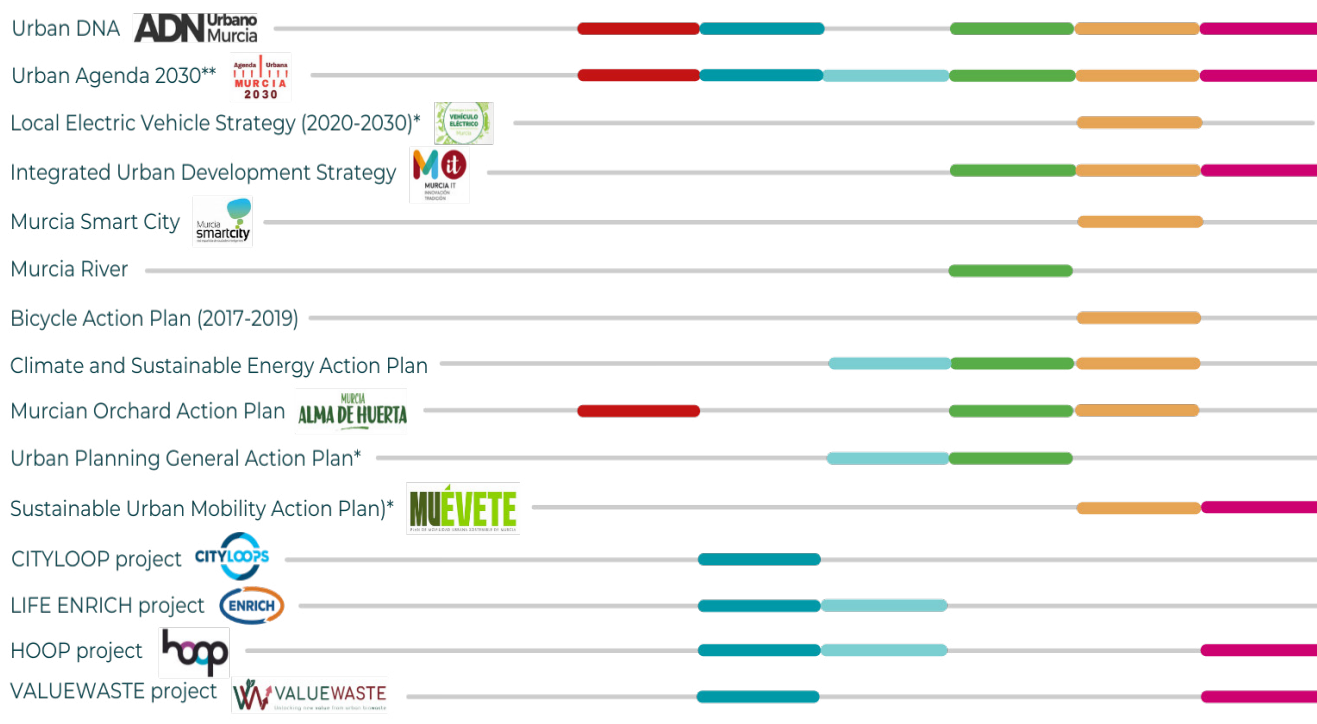
The new challenges that mark the transition towards circular economy require the implementation of actions that should be reflected in the different updates of the municipality's strategies and plans, and that should be built on projects, initiatives, plans or policies that have already been implemented or that are in operation.

Through the Action Plan proposed in this document, Murcian citizens will be part of this big challenge by demonstrating a positive change resulting from collective action. Circular relationships among the public, the private and the third sector and civil society will allow us to begin to undertake the challenges that our municipality is facing. Among them, we have diagnosed the changes in the consumption and mobility models, the optimisation of water and waste management, and the need to make our development and way of life compatible with the preservation of a green and blue Murcia (river and irrigation channels).

It is, therefore, evident that, even though we have a long way ahead, the steps that the municipality has taken in recent years, in addition to the development of the present MCES; undoubtedly show Murcia's commitment to become a more circular, sustainable, inclusive, resilient and secure municipality (SDG 11).

“ (...) Murcian citizens will be part of this big challenge by demonstrating a positive change resulting from collective action. ”

PLANS/STRATEGIES/PROJECTS



* Pending update
** Under development

Table 3. Plans/Strategies/Projects Developed by Murcia City Council Published, Pending Update or under Development, and their Relationship with the Focus Areas of Action

3.1. Circular Economy Assessment Report for Murcia Municipality

The first phase in the elaboration of the MCES was the development of the Circular Economy Assessment Report for Murcia Municipality, published in 2020 (Ayto.Murcia, 2020). The Assessment document revealed the degree of development of the circular economy in the municipality of Murcia, which allowed the identification of the priority lines of action (Table 1) that served as basis for the Action Plan. This Action plan, along with the Monitoring Plan conform the MCES.

In the Assessment document, information on social, economic and demographic structure of Murcia municipality was gathered and studied. Likewise, the document analysed the municipa-

lity's waste management, drinking water supply, wastewater treatment installations, mobility, and other elements; for each of the focus areas under study: Consumption, Waste Management, Water Management, Urban Spaces Sustainability, Mobility and Cross-cutting Policies.

This first panoramic insight about the municipality was completed with the identification of the numerous initiatives related to circular economy that are being carried out in Murcia, as well as with an exhaustive analysis of the locally produced raw materials, energy, water and waste/ by-products inflows and outflows; which is known as the "urban metabolism". As a foundation, a wide research process was carried out with the aid of experts, municipal technicians, the industry, organisations and non-profit associations, and the citizens.

The studies carried out within the framework of the Assessment document exposed the current state of the circular economy in Murcia by means of a circularity evaluation showing that despite all the work carried out in recent years, there is large room for improvement in order to achieve

a circular Murcia. Aspects to be improved include the management of some waste streams (including repairing, reuse and recycling), the city's connection with its surroundings; the development of a sustainable mobility connecting and organising the whole municipality; the increase of green spaces and the development of green infrastructure; the alignment and coordination among strategies and initiatives; and the access to information to evaluate and monitor the actions to be implemented.

As for the positive aspects, the high number of initiatives related to circular economy that are currently underway stands out, as well as the stakeholders' willingness and the municipality of Murcia's tradition in terms of local and proximity commerce. It is also important to highlight

the current reality, since circular economy is receiving a relevant boost at all levels as a response to global challenges, among which we could mention climate change and the crisis arising from COVID-19 (Ayto.Murcia, 2020). This analysis enabled the definition of the priority lines of action for each of the 6 focus areas, which are developed through specific actions in the present document.



Photography by Chema Román

4.

ACTION

PLAN

4.1. WORK METHODOLOGY

The development of the Action Plan has been carried out throughout 2021, based on the work done in the Assessment document (Ayto.Murcia, 2020). This process has involved a series of steps which will be described below.

1. Information Gathering Phase. In this phase, action plans from different leading cities worldwide that have successfully implemented circular economy strategies, plans or initiatives were studied. Specifically, a total of 50 cities from a report by the Organisation for Economic Co-operation and Development (OECD) were analysed (OECD, 2020). Among them, we can highlight London and Glasgow (United Kingdom), Paris (France), Rotterdam and Amsterdam (the Netherlands), Maribor (Slovenia), Copenhagen (Denmark), Oslo (Norway), Helsinki (Finland), Melbourne (Australia) and Kitakyushu (Japan); due to the advanced development of their Circular Economy Action Plans. Other circular economy initiatives from national cities similar to Murcia have also been studied. In total, more than 200 actions were identified to then be evaluated during the Participation Phase.

2. Participation Phase. Six circular agoras were established for each of the focus areas with the main goal of defining each of the actions in a consensual, objective, cohesive and coherent way; and adapting them to the singularities of the municipality of Murcia. In parallel, 9 personalised interviews with key actors were carried out. The consultation process continued with an online survey to the citizens, which was completed by 179 people. The survey's goal was to gather citizens' opinions about the transition to a circular economy, as a foundation to identify the main actions that Murcian citizens detect and consider of highest priority for the development and implementation of the circular economy. Figure 1 includes a summary of the participation process, as well as the most relevant results obtained from the citizen surveys. These results show the actions considered critical for each focus area of action. On the one hand, the option that received the largest number of votes among the actions defined on the survey is included; on the other hand, the option citizens considered to be of highest priority.

3. Drafting Phase. The information collected was stated in the development of the present Action Plan which covers a total of 30 actions (Table 2).

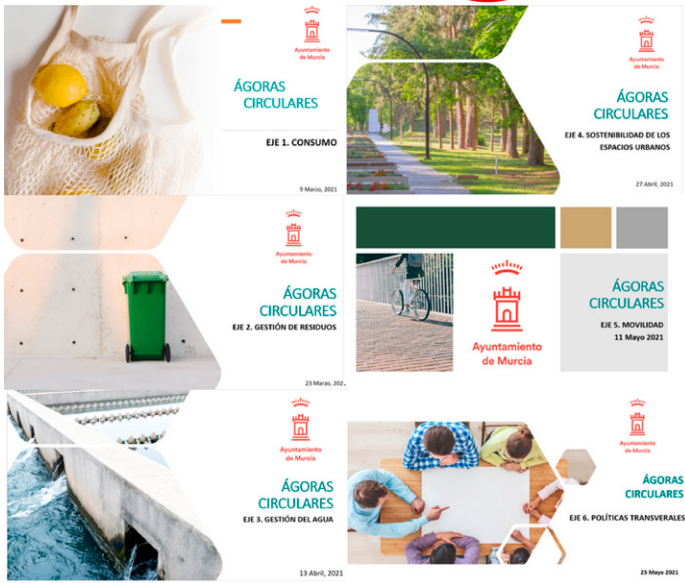
4. Layout and Translation Phase. During this stage the document was typeset and translated into English.



63 attendants (municipal technicians, experts, private and subcontracted entities, social organisations and associations)

6
CIRCULAR
AGORAS

179
SURVEYED
CITIZENS



● 1st option
● Most voted

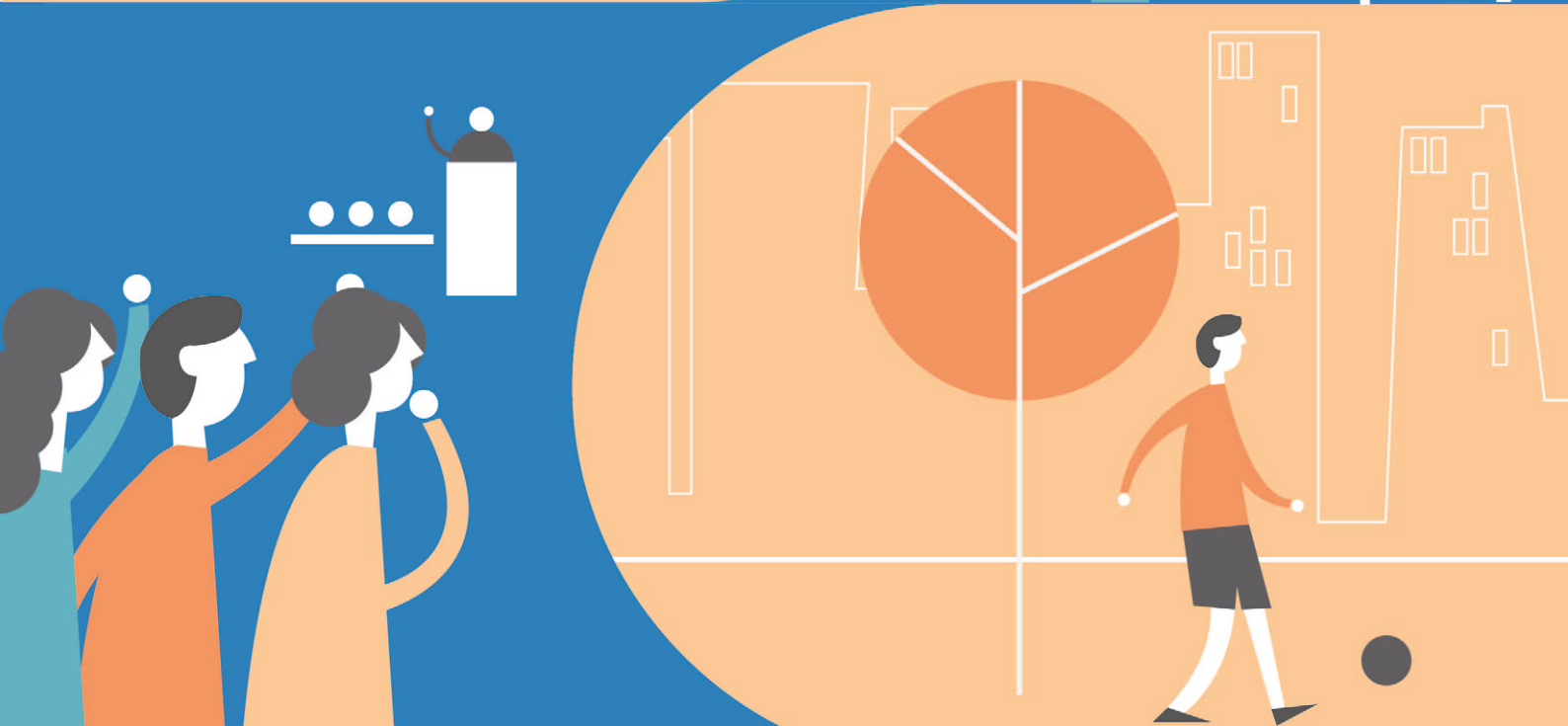
- Increase the use of proximity (kilometre zero) products, schools, hospitals and canteens, in public tenders
- Effective implementation of the selective collection municipal waste organic fraction at source
- Installation of waste deposit return systems with incentives for citizens
- Recovery of energy, nutrients and other materials from wastewater
- Reuse of reclaimed water for multiple (urban and non-urban) uses: watering parks and gardens, street cleaning, irrigation and other industrial uses
- Increase the green area surface and the number of trees
- Improve public transportation (frequency, cost, punctuality), especially the lines that connect other districts and municipalities
- Fulfilment of information and awareness-raising campaigns on circular economy aimed at citizens and private entities about consumption, mobility, sustainable spaces and water management issues
- Developing municipal funding calls to boost circular economy projects

9
PERSONALIZED
INTERVIEWS

- José Ramón Entralgo and Raúl Bello. Zaragoza City Council
- Lidia Serrano y David Palazón. STV
- Carmen Fructuoso. Councillor for Sustainable Mobility and Road Cleaning. Murcia City Council
- Juan F. Hernández. Councillor for European Programmes, Municipal Initiatives and Public Road. Murcia City Council
- Andrés Guerrero. Councillor for Urbanism and Ecologic Transition. Murcia City Council
- Juan Carlos Arranz and Alberto Fernández. Ecoembes
- Manuel Valls. Murcia City Council
- Marta Sánchez. Murcia City Council
- Teresa Jular (Businesswoman). Former President of the Spanish Network of Design Associations (READ)

Figure 1. Participation Phase. Participatory Processes Carried out: 6 Circular Agoras, 9 Personalised Interviews and Results (Preferred Action and Most Voted Action) Obtained from the 179 Surveys Completed by Citizens.





4.2. DESCRIPTION OF THE ACTIONS

The present document proposes an Action Plan to turn Murcia into a circular municipality. To achieve this goal, citizens, non-profit and for-profit organisations and public administration must work together in order to modify their consumption patterns, prevent and separate waste, use sustainable transport and participate in the definition of actions.

The Action Plan is underpinned by a series of actions that address the priority lines identified on the Assessment document (Ayto.Murcia, 2020), for each of the six focus areas. The definition of the actions for each focus area is preceded by a brief introduction and the priority lines identified.

The proposed actions are equally defined through the structure: necessity, activities, experience and benefits. Additionally, included in the summary tables inserted at the end of the document (Table), there is information on those in charge of their implementation, collaborations, target audience, indicators of success and monitoring, timeline and estimated budget.

Finally, and in order to ensure the accomplishment and practical application of the actions proposed, it is important to highlight that they have been adapted to fit the reality of the municipality and the European policies and norms in terms of waste, food waste, circularity within the textile and the plastic sectors, and so forth. Likewise, such actions are reinforced by those initiatives that are already being developed by associations, enterprises and research agents; which have been conveniently covered by the Assessment document.









Focus area	Priority Lines	Actions
 <p>Focus Area Consumption</p>	<p><i>Implementing measures to ensure responsible and proximity consumption</i></p> <hr/> <p><i>Reconnecting the city with its surroundings</i></p> <hr/> <p><i>Minimising food waste</i></p> <hr/> <p><i>Encouraging reuse and repair</i></p>	<p>Campaign to encourage responsible and local consumption</p> <p>Introduction of circular and sustainable guidelines for events and celebrations</p> <hr/> <p>Ecodesign for the creation of circular environments</p> <hr/> <p>Food waste assessment</p> <hr/> <p>Creation of ecosystems to extend product lifetime</p>
 <p>Focus Area Waste Management</p>	<p><i>Promoting the separation and selective collection of all the fractions at source</i></p> <hr/> <p><i>Optimising the management of the Construction and Demolition Waste (CDW)</i></p> <hr/> <p><i>Encouraging ecodesign, reusing, remanufacturing and recycling</i></p>	<p>Organic waste selective collection (bio-waste)</p> <p>Measures to reach the objectives of preparing for reusing and recycling the municipal fractions</p> <hr/> <p>Activities to promote the correct management and assessment of the Construction and Demolition Waste</p> <hr/> <p>Circular Economy Fair</p>
 <p>Focus Area Water Management</p>	<p><i>Promoting the sustainable management of rainwater drainages</i></p> <hr/> <p><i>Reusing water from different sources and for different uses</i></p> <hr/> <p><i>Water and energy efficiency and the ICT</i></p>	<p>Collection and reuse of storm rainwater and groundwater</p> <hr/> <p>Reusing wastewater to irrigate parks, gardens and the orchard</p> <hr/> <p>Development of a Water Management Ordinance</p>
 <p>Focus Area Sustainability of Urban Spaces</p>	<p><i>Increasing energy efficiency</i></p> <hr/> <p><i>Increasing resilient, self-sufficient, sustainable, green spaces and improving their connectivity</i></p> <hr/> <p><i>Optimising the urban system</i></p>	<p>Creation of "solar neighbourhoods"</p> <p>Local plan for the development and implementation of renewable energies</p> <p>Inventory of degraded areas and recovery proposal from a point of view of interconnectivity</p> <p>Sustainable pruning and crop residue management plan</p> <p>Development of a set of sustainable guidelines for parks and gardens</p> <p>Elaboration of the Green and Blue Infrastructure Strategy</p> <p>15-minute neighbourhood/district pilot</p>
 <p>Focus Area Mobility</p>	<p><i>Prioritising sustainable and low impact transportation: walking, sustainable personal mobility vehicles, collective transport</i></p> <hr/> <p><i>Organising the space in order to encourage sustainable mobility</i></p>	<p>Local vehicle-sharing platform</p> <p>Package of measures to promote the acquisition and use of sustainable vehicles</p> <hr/> <p>Establishment of low-emission zones</p> <p>Maximisation of the use of new technologies for a sustainable mobility</p>
 <p>Focus Area Cross-cutting Policies</p>	<p><i>Coordinating/aligning Strategies/Plans/Initiatives</i></p> <hr/> <p><i>Capitalising circular actions as examples of good practices</i></p> <hr/> <p><i>Developing effective, current and continuous public participation strategies</i></p> <hr/> <p><i>Developing training and/or awareness-raising activities</i></p> <hr/> <p><i>Developing municipal funding calls to boost circular economy projects</i></p> <hr/> <p><i>Promoting Sustainable and Innovative Public Procurement</i></p> <hr/> <p><i>Improving the access to information and monitoring</i></p>	<p>Creation of the web platform "Circular Murcia"</p> <hr/> <p>Creation of a Hub of disruptive, circular and innovative enterprises</p> <hr/> <p>Adoption of innovative participatory approaches</p> <hr/> <p>Development of the circular awareness-raising campaign</p> <hr/> <p>Development, identification and visualization of funding calls for circular economy projects</p> <hr/> <p>Development of the municipal Sustainable Public Procurement Manual</p> <hr/> <p>Measures to improve the access to information and its use, as well as to increase information availability</p>

Table 4. Focus Areas, Priority Lines and Proposed Actions

4.2.1. FOCUS AREA: CONSUMPTION

Responsible consumption is one of the main pillars of the circular economy and the SDG 12 about ensuring responsible production and consumption patterns. Consumption and production have been global economy's driving forces for decades. This model is based on the overexploitation of natural resources which has caused multiple impacts in our planet.

The need for a change of model has become more evident during the Covid-19 crisis, which has evidenced our obligation to dissociate economic growth from environmental degradation and promote more sustainable lifestyles and ways of consumption.

The focus area "Consumption" of the MCES includes the following priority lines and actions:



Focus Area
Consumption

C1. Implementing measures to ensure responsible and proximity consumption

C1.1. Campaign to encourage responsible and local consumption

C1.2. Introduction of circular and sustainable guidelines for events and celebrations

C2. Reconnecting the city with its surroundings

C2.1. Ecodesign for the creation of circular environments

C3. Minimising food waste

C3.1. Food waste assessment

C4. Encouraging reuse and repair

C4.1. Creation of ecosystems to extend product lifetime



Photography by Chema Román

Implementing measures to ensure responsible and proximity consumption.

The municipality of Murcia must walk towards the recovery of the local consumption that has characterised it for so long. Therefore, this priority line's main goal is to raise awareness on the benefits of consuming proximity products, as a way to facilitate the achievement of other related objectives, such as, for example, promoting the consumption of local products at all levels: administration, local stores, department stores and citizens.

Reconnecting the city with its surroundings.

Tradition, convenience and society show us how necessary it is to reconnect the city with its environment. Developing good practices on sustainable management and sharing them with the citizens is a present and future investment on circularity; especially when the associated circular business models are based on ecodesign.

Minimising food waste.

Reducing food waste is one of the essential initiatives of the European Union's "Farm to Fork Strategy" (European Commission, 2020a) and it is one of those initiatives where Murcia must continue to work, considering all the elements in the value chain. In fact, the municipality possesses an economy with great weight on the primary sector, highlighting its "Huerta" (orchard), the presence of agri-food industries and a large catering industry.

Encouraging Reuse and Repair.

The Circular economy goes beyond recycling since it considers repair and reuse as key elements to reduce resource consumption. At a local level, administrations can facilitate physical places, such as information and meeting platforms to lengthen product lifetime. This helps to build a culture against waste and in favour of repair and reuse where citizens feel proud to belong.



Campaign to encourage responsible and local consumption

Necessity. One of the most influential factors when assimilating responsible consumption patterns is proximity. From this idea derives the concept of local purchasing/sale, which in turn, brings about large environmental, social and economic benefits. With the irruption of supermarkets, department stores and, in recent years, of e-commerce, together with the agitated pace of life; consumption patterns have changed, leaving behind the traditional purchase of proximity products that used to take place in markets and “neighbourhood stores”. This, added to the Covid-19 pandemic, which has skyrocketed e-sales, has led to the closure of local stores. Thus, the Municipality of Murcia, its enterprises and citizens lose their jobs and sources of income, tourist attraction and liveliness of its streets and orchard.

Activities. Exemplary activities to encourage responsible and proximity consumption will include **the visualization of those City Council's procurements that incorporate responsible consumption criteria and the improvement of mechanisms and obligations for proximity purchasing** (for instance, in the purchase of Km 0 products in schools and hospitals). Other activities that citizens are demanding will focus on **improving consumer information by means of labelling** (it should be digital and include, for example, a seal of proximity, the product's environmental footprint, among others) and **drawing attention to locally produced products by the shops themselves**. In order to facilitate selling local products in the municipality, the City Council will **support local product seller facilities in markets** and other spaces through marketing campaigns. Awareness-raising campaigns on responsible, sustainable and proximity consumption patterns become extremely important, mainly during special dates such as sales, Christmas, and other festivities where the City Council's digital media (webpage and Twitter) will be used to increase the reach of the campaigns.

Experiences. Murcia City Council, as well as other public, private and social entities are already actively supporting local consumption with the implementation of some initiatives. Among them, it is important to mention the Project *Tejiendo Redes*⁸ (Weaving Networks), which was born with the mission of promoting agroecolo-

gy and bringing local producers and potential local consumers together. On the other hand, the Action Plan for the Murcian Orchard, under the identity “Murcia, Soul of the Orchard” has the common goal of protecting, recovering and developing the Murcian Orchard⁹.

Benefits. Even when the breeding ground for the development of proximity commerce is created, the present action will try to introduce new activities and values to destroy the barriers that slow down responsible and local consumption. Proximity commerce needs to regain prominence and, in turn, reinvent itself, using digitalisation. By implementing these activities, the environmental footprint of the products consumed is intended to be much smaller, with the consequent energy and emissions economisation during transport, as well as a reduction in packaging and discards. Likewise, these actions will help to preserve the orchard and its rural environment, strengthening the economy that has its origins in our land, facilitating a fairer trade and increasing job creation.

Introduction of circular and sustainable guidelines of events and celebrations

Necessity. Sustainable events are designed and organised with two main aims. On the one hand, the minimisation of negative environmental impacts and on the other hand, the benefits that the community obtains thanks to the reduction of waste generation, the appropriate waste management, the reduction of water and energy consumption and the decrease of atmospheric, acoustic and light pollution, among others.

The events celebrated every year (*Bando de la Huerta* (local celebration to honour the Murcian orchard and smallholding farmers), *Entierro de la Sardina* (Burial of the Sardine), *Cabalgata de Reyes* (Procession of the Magi), *Romería de la Virgen de la Fuensanta* (The Pilgrimage of the Fuensanta Virgin), the September Fair, music festivals and concerts, sport competitions, demonstrations, etc.) produce a great impact in the municipality and the citizens, especially in terms of waste generation (for instance, on the *Bando de la Huerta* day, between 70-90 tonnes of rubbish are collected). Besides from waste increase, private journeys using motor vehicles

8. Proyecto Tejiendo Redes. <http://tejiendoredes.eu/introduccion/c3%b3n.html>

9. Murcia Alma de Huerta. <http://huertademurcia.murcia.es/huertamurcia/>

multiply and neighbours suffer from amplified nuisance. Therefore, it is necessary to establish a regulated framework imposing circular economy measures applied to such events so that they can become sustainable and connected with the environment.

Activities. The following action has the main goal of creating a circular events culture. In order to succeed, these activities include **the obligation of assigning a person in charge of circular management** in any sort of event, whether it is coordinated by the City Council or by third parties; as well as the organisers' commitment to possess a plan comprising minimum number of **circular measures**, such as employing reusable dinner service, avoiding the use of containers and packaging whenever possible, collecting waste selectively, guaranteeing the access to water fountains, promoting the use of individual bottles and storage containers, prioritising the use of bulk dispensers or the use of local and seasonal products, encouraging the use of renewable energies, rational use of energy/lightning or encouraging reuse, as much as possible. Organisers will also be obligated to **transmit sustainable values to the audience in terms of waste generation, use of active mobility system, decrease of food waste, among others.** The organising entities could certify their event management system according to the Standard UNE-ISO 20121:2013, which provides recommendations on sustainability criteria.

Experiences. The "Don't be a pig" campaign by the City Council and Ferrovial was created to raise social awareness on bad urban waste management and it has been present in municipal events since 2015. Other private events, such as the music festival "Warm up Estrella de Levante" has incorporated a sustainability plan to decrease their environmental footprint (WARMUP, 2021).

Benefits. The effect of the activities proposed will be most evident on the decrease of generated waste and its correct management. Likewise, a reduction in resource and energy consumption is foreseen, which will, therefore, reduce costs. On the other hand, these activities will prove citizens' and entities' commitment to protect the environment.



Photography by Chema Román

Ecodesign for the creation of circular environments

Necessity. Regeneration of natural environments is crucial to connect citizens with the spaces that surround them. The surroundings of the municipality of Murcia are home to both tradition and modernity; however, many of these areas are being abandoned due to lack of services and economic opportunities, which is causing their deterioration. It becomes, therefore, necessary, the participation of private entities that redesign these spaces by developing low-impact circular businesses, generating economic value.

To increase business competitiveness, it is indispensable to carry out a prior and optimised design of product and services. The former design will begin by detecting where the environmental impacts of the activities to be undertaken are, in order to prevent them. The business models that analyse such environmental impacts are based on ecodesign and they allow companies to increase competitiveness through their environmental sustainability.

Activities. The present action intends to establish the basis for the creation of circular businesses, especially those that due to their characteristics, connect citizens with their environment. In order to achieve it, it is expected that entrepreneurs looking to begin their businesses use ecodesign and receive advice to implement circular business models by means of methodologies such as Ecocanvas¹⁰.

The City Council, whether by **training courses, advice activities on circular businesses or by establishing agreements with other entities** specialised on ecodesign and entrepreneurship (such as AMUSAL¹¹ and DIP¹²), will allow entrepreneurs to use these tools for the development of new business models. Besides, once established, such businesses will be made **visible, as examples of good practices.**

Experiences. In Murcia municipality there are several examples of private initiatives that have followed circular business models. Among them, and as an example of initiatives that reconnect Murcia with its surroundings, is the *San Antonio* Agricultural Estate in *Sangonera la Seca*, which has become a laboratory of circular transformation thanks to the development of a business model based on the Ecocanvas methodology.

Benefits. The commitment to create circular business models, especially in rural areas, will have positive results in terms of reconnecting the city with its surroundings, creating green jobs, avoiding the abandonment of traditional spaces, etc. This analysis will allow, among other advantages, the reduction of impacts, such as the quantity of raw materials used, energy consumption, the establishment of renewable energies and the optimisation of logistics, thus reducing associated costs.

Food waste assessment

Necessity. According to United Nations sources, it is estimated that every year one third of all food produced, equivalent to 1.3 billion tonnes worth around 1 trillion dollars (850 million euro), ends up being thrown away (UN, 2021). In 2020, each Spaniard threw away an average of 31 kilos/litres of food and drink, which is similar to the previous year's data (MAPA, 2021). These amounts correspond to approximately 42% of the total amount wasted, and are complemented by 39% in manufacturing, 14% in catering and 5% in distribution¹³. The municipality of Murcia does not have official figures on the amount of food wasted, but it is estimated that the figures are similar to national figures.

In order to put an end to food waste, the commitment and involvement of citizens, businesses and the City Council are necessary so that together, it is possible to overcome the challenges that prevent the creation of a local surplus collection network, including logistical feasibility and, therefore, the use of surplus food.

Activities. A key and fundamental activity to reduce food waste is the implementation of **information and educational campaigns** aimed at citizens (e.g. the development of exemplary activities in schools), but also at private entities. These campaigns will tackle the barriers identified

10. Ecocanvas. <https://ecologing.es/>

11. Observatorio de Economía Circular. <https://www.amusal.es/asociacion/observatorio-economia-circular>

12. DIP. <https://dipmurcia.es/>

13. Web "Aquí no se tira nada". <https://menosdesperdicio.es/>



Photography by Chema Román

after the completion of the **food waste assessment** in the municipality. This study will analyse quantitatively and qualitatively the generators of food waste (households, catering and leisure, markets, events, etc.) and the collection logistics, at the time that it will identify the challenges they face and propose solutions and measures to be implemented. In regard to these measures, measurement indicators for their correct monitoring will be proposed. In addition, among those activities involving the private sector, the City Council, within its competences, will create **tax incentives** for companies that donate food and train their staff in waste reduction. Another important and necessary activity to minimise food waste is to encourage **public-private collaboration and collaboration with social agents**, this will be possible through the City Council's provision of more aid and an improved collection logistics.

Experiences. Several non-profit organisations work in the municipality of Murcia, such as the Banco de Alimentos del Segura (Segura Food Bank, BASMUR as per the Spanish), Jesús Abandonado (charitable Foundation), Red Cross, Caritas, etc., carrying out great social work enabling the distribution of food to the most vulnerable groups. Today, there are also private initiatives that try to fight against food waste, among them is the Toogoodtogo Platform with its App (Toogoodtogo, 2021).

Benefits. Making use of food that has so far been wasted will help to generate local initiatives that sow sustainable consumption and production behaviours, as well as social awareness. Immediate and direct benefits for the environment are also expected with the consequent reduction of waste and, therefore, of emissions. It is estimated that between 8% and 10% of global greenhouse gas emissions are associated with food that is not consumed (Mbow et al., 2019).

Creation of ecosystems to extend product lifetime

Necessity. According to EUROSTAT data from 2019, the repair sector generates 1.53% of jobs in Europe only considering repair companies for leather goods, household appliances, jewellery and computers (Eurostat, 2021a; IHOBE, 2019). Despite showing good employment data, several supra-municipal barriers to the deployment of a repair economy are identified, such as the lack of data, regulations, and incentives for producers who use ecodesign and the high cost of repair and spare parts. At the local level, the

Photography by Chema Román



main obstacles are the reduction in the number of repair shops, in many cases traditional trades, and the lack of support from local authorities. These barriers, together with the consumerist tendencies of society, promote the discarding of products and the difficulty of repair and reuse.

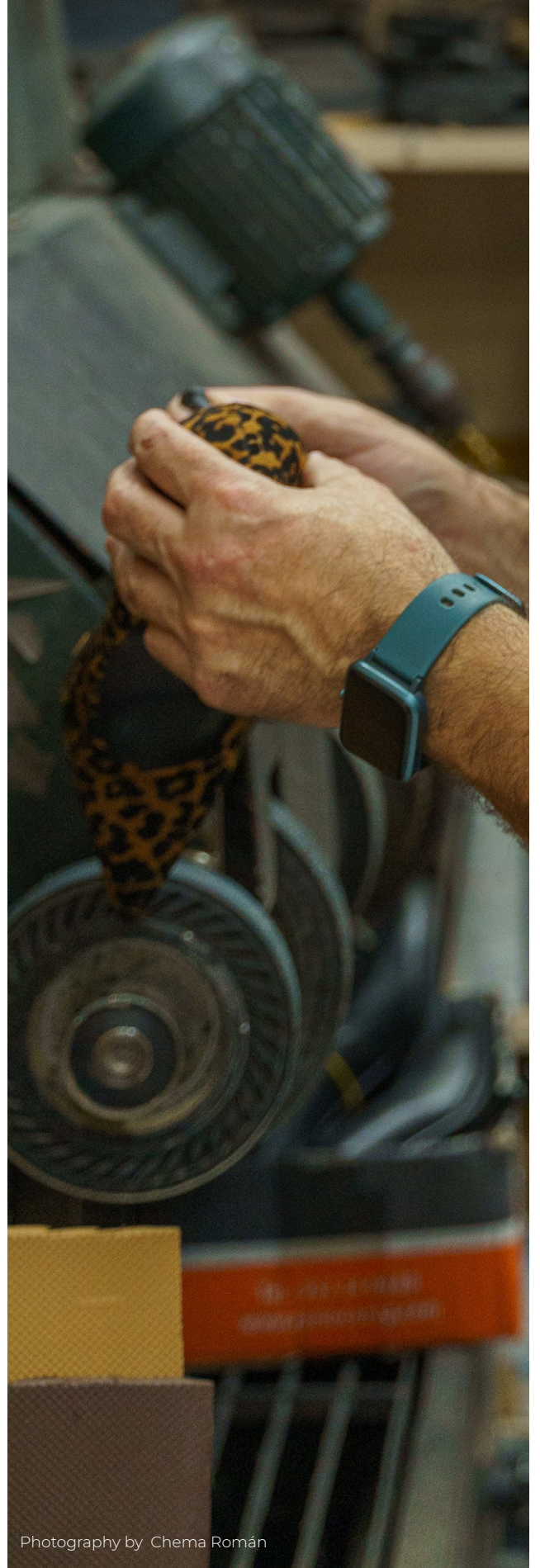
Activities. The City Council will generate tools to support repair, such as the **development of a register of entities that carry out repairs and also those that offer training**, and the **creation of collective spaces where the lifetime of material goods is extended**. Such collective spaces could be, for example, neighbourhood repair workshops where repair tools and activities are provided, new clean points in the districts that, in turn, function as repair and exchange spaces, etc. Measures applicable to businesses and social entities will include: **incentivising the creation of second-hand shops** and repair workshops, **facilitating businesses to follow servitisation models**, creating a platform and a **municipal resource exchange bank** between local businesses and the City Council. It will also be necessary to carry out information and communication campaigns for citizens, providing them with information on the benefits of repairing and the places available for each type of product.

In addition, **a circular reuse guide** will be created, which will include items that can be repaired, places where they can be repaired, exchanged or sold, information on their current use and disposal cycle, etc. This guide will be accompanied by visual content where citizens will tell first-hand about their own experiences, tips and best practices. The digital contents will be hosted on the “Circular Murcia” web platform created in the action “P1.1. Creation of the Web Platform “Circular Murcia”, of the FOCUS AREA: CROSS-CUTTING POLICIES”.

Experiences. *Traperos de Emaús* and its green card (Traperos Emaús, 2021), the Collective MODAlogia (MODAlogia, 2021), the *Murciaenbici* self-managed workshop (Murciaenbici, 2021) and the repair workshop organised by Extinction Rebellion in Vistabella, stand out as initiatives that contribute to extending the life of products by repairing and reusing them. The good work of these groups will serve as a basis for implementing measures that respond to the needs and demands of citizens.

Benefits. The proposed activities are expected to have a positive effect on the way citizens and businesses manage post-consumer products. The environmental and social benefits of this change of mindset are clear, as it will reduce

the consumption of raw materials and energy, as well as the amount of waste generated and greenhouse gas emissions. At a social level, reuse generates local employment, especially for groups at risk of social exclusion, and guarantees more affordable prices for people with scarce resources.



Photography by Chema Román

4.2.2. FOCUS AREA: WASTE MANAGEMENT

Europe is not self-sufficient; in fact, it heavily relies on imported material resources for almost all sectors of activity. A large part of these valuable resources are being lost during waste management due to lack of consumer involvement and awareness, inappropriate collection, technological barriers encountered during their valorisation or realisation of new designs, and poor

market access to secondary raw materials with higher prices than materials from non-renewable sources.

The focus area “Waste Management” of the MCES includes the following priority lines and actions:



Ws1. Promoting the separation and selective collection of all the fractions at source

Ws1.1. Organic waste selective collection (bio-waste)

Ws1.2. Measures to reach the objectives of preparing for reusing and recycling the municipal fractions

Ws2. Optimising the management of the Construction and Demolition Waste (CDW)

Ws2.1. Activities to promote the correct management and assessment of the Construction and Demolition Waste

Ws3. Encouraging ecodesign, reusing, remanufacturing and recycling

Ws3.1. Circular Economy Fair



Promoting the separation and selective collection of all the fractions at source.

Spain has failed to comply with the waste framework DIRECTIVE (EU) 2018/851 (European Commission, 2018b) which required achieving a recovery and recycling level of 50% by weight of municipal waste by 2020 (to be 55% by 2025, 60% by 2030 and 65% by 2035). According to 2019 data, the municipal waste recycling rate is only 34.7% (Eurostat, 2021b). It is clear that the current model has failed and new approaches better adapted to each reality will be needed. Murcia, its citizens and companies must make progress in increasing the selective collection rates of the current fractions, as well as those that will be imposed by regulations in the coming years. This will require the modernisation and adaptation of its management in order to facilitate recycling and preparation for reuse.

Optimising the management of the Construction and Demolition Waste (CDW).

CDW is the most important waste stream in Europe, accounting for more than one third of all waste generated in the EU (European Commission, 2021a). Despite efforts, the usual destination of CDW is landfill. It is important to note that, at the municipal level, the competences of local authorities are only for minor works.

Encouraging ecodesign, reusing, re-manufacturing and recycling.

In addition to the recycling targets, rates of at least 5%, 10% and 15% should be achieved by 2025, 2030 and 2035 respectively, in terms of preparing for reuse, mainly textile waste, WEEE (Waste Electrical and Electronic Equipment), furniture and other waste that can be prepared for reuse. The success of sorting programmes relies particularly on the citizen as the first actor in the chain, so the administration must focus on encouraging this participation and making it effective, for example by providing infrastructures and offering incentives.



Sports track made of recycled glass.
Pavilion Prince of Asturias
Photography by Chema Román

Organic waste (bio-waste) selective collection

Necessity. The EU stipulates that, by 31 December 2023, Member States have to ensure the separation and recycling, or separate collection, of municipal bio-waste at source. At the national level and according to the draft Law on Waste and Contaminated Soil (MITECO, 2020a), separate collection of bio-waste from households must be established by 31 December 2021 for local authorities with a legal population of more than 5,000 inhabitants, and by 31 December 2023 for the rest.

The implementation of the brown bin in the city of Murcia, its neighbourhoods and districts is progressing slowly. It currently faces a series of barriers such as the need to adapt collection to the different neighbourhoods and districts and treatment facilities, lack of awareness among citizens and the HoReCa¹⁴ sector, which affects the quantity and quality of the bio-waste collected, and the insufficient development of business models associated with recovery. Currently, these business models are not profitable and depend especially on the quality of the bio-waste (presence of improper materials).

Activities. The success in the selective collection of the organic fraction and its corresponding valorisation with a market outlet for the products obtained will require a series of priority actions. These activities will be developed on the basis created in the European project VALUEWASTE¹⁵, and will include as a first step the **development of a collection and recovery plan** for the entire municipality that includes an assessment of the generation and state of waste management and a study of business models that reflect recovery alternatives. The conclusions of these studies will determine the measures that could be implemented, such as the development of incentives for selective collection/taxes on excessive waste production, systems to control the quantity and quality of waste, agreements with large generators, promotion of community composting plants, development of recovery systems for the production of high value products, etc. The preliminary studies will be the basis for **ongoing information and awareness-raising campaigns**, which will be specific and targeted at key actors (citizens and the HoReCa sector) and in general at each neighbourhood depending on their

degree of awareness/participation and geographical characteristics. The **implementation of selective collection and recovery** of the organic fraction of urban waste will be carried out by updating citizen campaigns and infrastructure so that the quality of the bio-waste collected allows its correct recovery, as well as its subsequent disposal on the market.

Experiences. The selective collection of bio-waste in the municipality and its valorisation into high-value bioproducts has already begun in La Flota neighbourhood and markets, within the framework of the European project VALUEWASTE, coordinated by the Region of Murcia's Technology Center of Energy and Environment.

Benefits. The implementation of an efficient and viable collection and recovery system is expected, adapted to each area of the municipality and resulting in separation rates and quality of bio-waste suitable for its correct recovery. This will have a positive influence on the reduction of greenhouse gas emissions, as well as on the creation of bioproducts to replace those produced from non-renewable sources, and which will allow the development of a genuine local circular economy based on bio-waste.

Measures to reach the objectives of preparing for reusing and recycling the municipal fractions

Necessity. Separate collection of municipal waste will be mandatory for the traditional fractions: paper, metals, plastic and glass, and for other new fractions: bio-waste from households (by 31 December 2021), textile waste, used cooking oils or household hazardous waste (by 31 December 2024) (MITECO, 2020a).

The packaging waste targets set in Directive (EU) 2018/852 are set at 65% by weight by 2025. Specific targets are 50% for plastics, 75% for paper and cardboard, 70% for glass and 50% for aluminium, 70% for ferrous and 25% for wood (European Commission, 2018a). In order to meet the objectives set by Europe, a greater commitment by all will be necessary to overcome technical, economic and socio-cultural barriers.

Activities. The continuous organisation of **dissemination, awareness and information campaigns** will be essential both to reduce the amount of waste generated and to achieve the recycling targets. These campaigns should fo-

14. HORECA: sector of the food service at Hotels, Restaurants and Catering



cus on those places that, due to being leisure or tourist areas, have more difficulties in separating waste, as well as those neighbourhoods or districts that, for various reasons, have lower recycling rates than the local average. The first step prior to the improvement and/or new implementation of segregated fraction collection at source includes the **preparation of an assessment** to analyse the current management system used, both in households and in private or public commercial activities, as well as to ascertain the public's perception and the problems encountered by the population.

The promotion of waste reduction inside and outside households should be encouraged through the **adaptation of taxation**, the granting of **business licences and calls for tender**, the promotion and **distinction of good practice labels and training** for the groups involved.

It will be necessary to improve the already consolidated separation at source and to implement the other fractions contemplated in the European directive. Among the new fractions that will be obligatory to separate in the coming years is the collection of textiles, where **agreements with social economy organisations** will be established that already have containers on the public highway, penalising illegal practices. As necessary tools, collection should be optimised through the **use of new technologies** (sensors in containers, satellite positioning systems) and the use systems to enhance recycling (e.g. deposit, return and refund systems and Return and Reward, such as RECICLOS).

Experiences. The collection of the textile fraction is carried out by several NGOs such as *Proyecto Abraham*, *Asociación Reutilizados y Reciclados del Sureste*, *Traperos de Emaús* or *Remar*. These entities have a well-oiled logistical structure and make it possible to give a second chance to the clothes we throw away. Regarding the promotion of recycling of traditional fractions, the awareness campaigns carried out by *Cespa* (a waste management and treatment company), *Ecoembes* and *Ecovidrio* in recent years (*Drillo Dile* campaigns; *“Dónde va qué”* (What goes Where)¹⁶; *“encesta tú, ganamos todos”* (you score a basket, we all win, etc.)) stand out.

16. ECOEMBES ([murciaciudadesostenible.es](http://www.murciaciudadesostenible.es)) <http://www.murciaciudadesostenible.es/reciclaenvases/>

Benefits. The environmental benefits to be obtained from increased sorting rates and collection optimisation include reduced greenhouse gas emissions and reduced resource consumption due to the increased availability of secondary raw materials for recycling.

Activities to promote the proper management and recovery of CDW

Necessity. The high volume of CDW generated, the low rate of reuse, as well as the high percentage of illegalities associated with its management constitute a challenge for local authorities, whose competences fall solely on minor works.

The current channels for the deposit of CDW by small companies and the citizens of the municipality of Murcia are the clean points. In this way, the priority actions within the scope of municipal competences should focus on guaranteeing the correct management of CDW from minor works, which allows for its subsequent recovery.

Activities. The activities to be carried out to improve the management of CDW include the **development of protocols and regulations** that involve professionals and unequivocally establish their **management responsibility** for these, the establishment of a **sanctioning regime for incorrect management**, the use of new technologies to improve control and traceability and the promotion of the deposit in clean points exclusively for minor works. Finally, the City Council can encourage the recovery of CDW by promoting the acquisition of materials from this waste through **sustainable public procurement** and the granting of building permits. In addition, **rubbish dumps will be set up in the districts** to facilitate the deposit of CDW for their residents.

Experiences. The Murcia City Council participates in the European project CITYLOOPS¹⁷ whose aim is to close the loop of two of the most important waste streams in Europe: CDW and bio-waste. The experience gained will serve as a foundation for initiating the proposed activities.

Benefits. This action is expected to increase the use of recoverable materials from recycled CDW, both in public and private procurement, and to limit illegal dumping.

Photography by José M Soriano Disla



17. Proyecto CITYLOOPS. <https://cityloops.eu/>

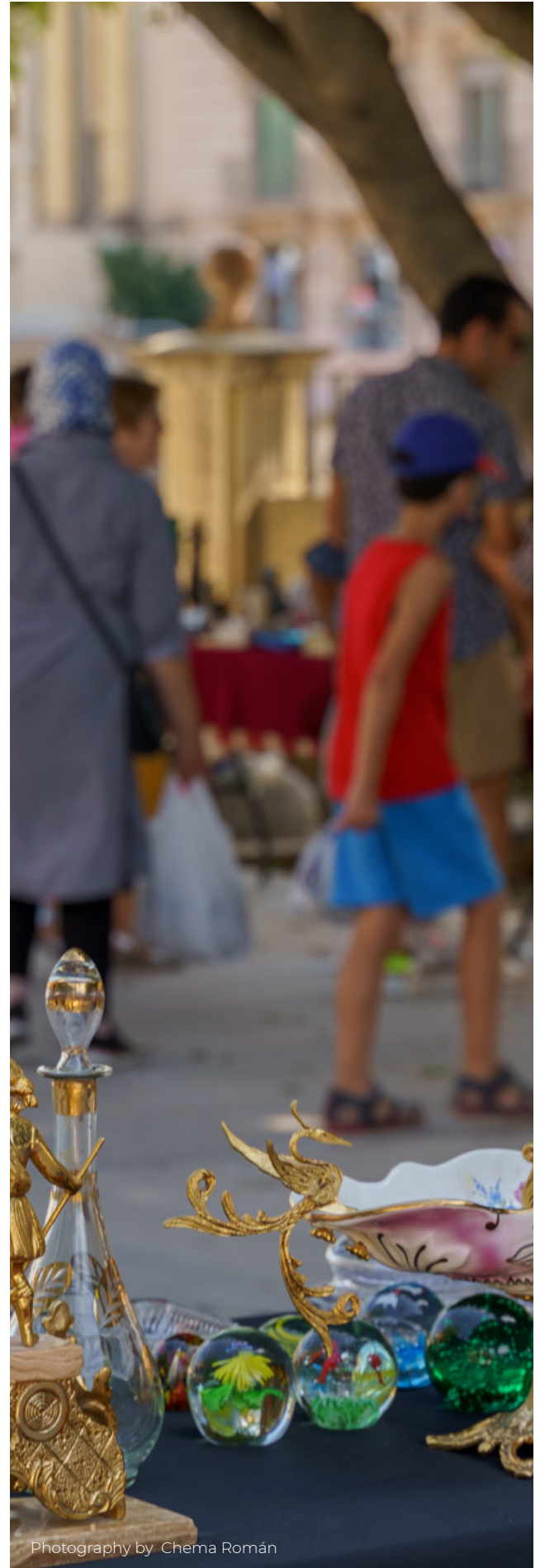
Circular Economy Fair

Necessity. The deployment of the circular economy entails the commitment of all actors and the need for continuity, avoiding the implementation of one-time actions and coordinating objectives and actions with existing strategies and initiatives. In general, citizens are confused by the concept of circular economy and do not easily identify the promoters of good practices. Therefore, the visualisation of exemplary activities and the actors that make them possible is essential to raise public awareness and initiate the journey towards circularity.

Activities. This action proposes the celebration of the annual Circular Economy Fair. This event, which aims to involve all citizens and companies, will serve as a platform to showcase the circular economy actions, projects, initiatives, etc., that are carried out in the municipality, and raise awareness of the need for a change in the consumption model. Among the activities to be developed, **sustainable markets, both of handmade and second-hand products** will be organised (which will also be held throughout the year) in the city of Murcia and its districts. Likewise, there will be a **Show of companies, trades and small repairs**, in which artisans and “handymen” will take part, together with consolidated companies that apply circular business models. Among other activities, there will be **exhibitions** (e.g. of works of art with recycled material, documentaries, etc.), a series of conferences (workshops with round tables and presentations by experts), competitions for citizens and companies, as well as **visits to the Cañada Hermosa waste treatment plant**. The involvement and participation of citizens will also be articulated through the **“Circular Clubs”**, an activity included in the FOCUS AREA: CROSS-CUTTING POLICIES, in the action “P3.1 Adoption of Innovative Participatory Approaches”

Experiences. The Murcian association *Amigos del Rastro* (Friends of the Second-hand Market) holds an antiques market every Sunday in Plano de San Francisco square (except in times of restrictions due to Covid-19).

Benefits. The Circular Economy Fair is expected to become a benchmark event in circular economy at national level. Furthermore, at a local level it will involve citizens, with the aim of establishing circular lifestyles and stimulating second-hand and zero waste trade.



Photography by Chema Román

4.2.3. FOCUS AREA: WATER MANAGE- MENT

Most of the world's water supply comes from surface and groundwater sources. The growing demand due to population growth requires a reduction in the pressure on these natural water sources in terms of quantity and pollution.

Due to water scarcity, alternative water sources are exploited in the Region of Murcia, such as salt water and reused water, especially for agricultural irrigation. However, considering the

consequences of climate change, these must be developed and gradually introduced in urban water infrastructures, which have to be re-designed. It is therefore necessary to adopt new approaches, such as rainwater and brackish water harvesting at the appropriate quality level, or reuse strategies such as industrial symbiosis. These approaches are particularly relevant in urban areas where water efficiency rates are low, but the potential uses are manifold.

The focus area "Water Management" of the MCES includes the following priority lines and actions:



W1. Promoting the sustainable management of the rainwater drainages

W1.1. Collection and reuse of rainwater and groundwater

W2. Reusing water from different sources and for different uses

W2.1. Reusing wastewater to irrigate parks, gardens and the orchard

W3. Water and energy efficiency and the ICT

W3.1. Development of a Water Management Ordinance



Promoting the sustainable management of rainwater drainage.

The standard UNE-EN 16941-1:2019 for on-site non-potable water systems (Part 1: Systems for the use of rainwater) has recently been published, which states that all new constructions and buildings with green or common areas should store, through a tank, rainwater collected from roofs and terraces. Murcia can and must make progress in rainwater harvesting and groundwater harvesting, activities that will be key to combating water scarcity.

Reusing water from different sources and for different uses.

SDG 6 sets specific targets to reduce water pollution and the percentage of untreated wastewater, and to increase the reuse and efficient use of water resources. This is Murcia's case, where reuse is present in the irrigation of parks and gardens, sports facilities and street cleaning. However, a greater effort must be made to increase reuse levels throughout the municipality.

Water and energy efficiency and the ICT.

The concepts of "Water-Smart Society", "digital water" or "multiple waters" will be present in the European and national agendas of the next decade, focusing on the development of technologies and digitalisation, new business models, the promotion of the availability of different sources of water to complement the current ones, innovative governance approaches, as well as deepening awareness, integration and collaboration between organisations and citizens (WaterEurope, 2016). In Murcia, it is vital to develop a Water Ordinance accompanied by the use of new technologies to achieve water and energy efficiency.



Photography by Tomás García

Collection and reuse of rainwaters and groundwater

Necessity. Local authorities in the Spanish Levante (eastern Spain), and specifically in the municipality of Murcia, are faced with the challenge of integrating alternative water sources, such as rainwater and phreatic drainage, into the infrastructures (public or private) of urban and peri-urban centres, not only to take advantage of this scarce resource, but also to avoid flooding and the collapse of the sewage and wastewater treatment system.

Activities. Activities to promote the use of alternative water sources, especially rainwater and groundwater, include as a first step **the integration of sustainable rainwater drainage management into the design of urban planning**, i.e. to include such criteria in the new urban development plan. This integration should be done in parallel with the necessary **upgrading of facilities**, as well as **ensuring the quality of collected and stored water** through the construction of separate networks, storm tanks and the use of new technologies for quality control. An interesting technique for rainwater management is the **use of Sustainable Urban Drainage Systems (SUDS)**, which are already being promoted by the City Council to favour infiltration and control of floodable but also non-floodable areas, thus avoiding soil saturation. The SUDS must be mandatory in new constructions and improvements to existing ones, using their inclusion in the contracting of public works and mandatory requirement in new buildings.

Experiences. Murcia takes part in the European project LIFE CONQUER¹⁸, where its partners are developing an innovative system to reduce the levels of nitrates and other salts contained in the water table while maintaining the necessary nutrients, and to be able to use the resulting water for irrigation of parks and gardens. The full-scale pilot plant will recover 500,000 m³/year of water, which will be injected directly into the urban irrigation network.

Benefits. The measures to be implemented to achieve the use of rainwater and groundwater will lead Murcia to noticeably reduce the use of water for human consumption, and especially for irrigation of parks and gardens. In addition, a correct planning of infrastructures using SUDS will avoid runoff, flooding and unnecessary accumulation after heavy rainfall events.

Reusing wastewater to irrigate parks, gardens and orchard

Necessity. The new conception of the city as a living, sustainable organism that manages resources from the point of view of self-sufficiency implies that the sewerage network not only fulfils its historical function of transporting wastewater to treatment plants, but also incorporates other alternative sources of water into the system, such as reclaimed water, with the aim of being reused. In the municipality of Murcia, 11 % of the treated water is reused for agricultural, environmental and recreational purposes. The remaining 89 % is returned to the *Segura* River or natural watercourse as an ecological flow. The water discharged into the river is mainly treated at the Murcia-East Wastewater Treatment Plant (WWTP) (between 35-39 Mm³/year), the largest in the municipality (Ayto.Murcia, 2020). Part of this volume, without harming the ecological flow of the river, has a high potential for the uses envisaged in the new European legislation (European Commission, 2020c): agricultural irrigation, water reuse in industry, and for environmental and recreational purposes.

Activities. The activities needed to ensure the reuse of water from WWTPs include the **installation of tertiary treatment** in those WWTPs that do not have it and to ensure the quality of reclaimed water for any permitted use. These installations must be accompanied by the **development of additional infrastructure** to complement the existing one and create an **urban reclaimed water network**, including the necessary digitalised equipment to guarantee both the safety of the water and its optimised use. **Consumers' trust** in the use of reclaimed water also needs to be addressed through, for example, **awareness-raising campaigns**, guided tours of facilities, information on the cost of using reclaimed water, but also of not using reclaimed water, and the development of indicators that allow us to measure the degree of reuse in order to inform citizens in an objective way. Among other reuse actions, the **collection and reuse of water from swimming pools** and the **reuse of water in industrial vehicle washing facilities** will be promoted, provided that the legislation (which will be updated in the short term) allows it.

Experiences. The municipality of Murcia has 16 WWTPs, which treat approximately 41 Mm³ annually. Although most of the treated water is discharged into the *Segura* River, most of the municipality's WWTPs reuse their water for

18. Proyecto LIFE CONQUER. <https://www.life-conquer.eu/>

agricultural irrigation, sports facilities and green spaces.

Benefits. With the use of reclaimed water, the use of alternative water sources is achieved and therefore a reduction in the consumption of water from conventional sources. In particular, the use of reclaimed water in irrigation channels will improve the environmental quality of the orchard environment and provide climatic comfort.

Development of a Water Management Ordinance

Necessity. Municipal action in the field of sanitation and treatment is vital, not only within the Spanish regulatory framework, but also in accordance with the general objectives of sustainability. Cities must seek the rational use of water and its appropriate management following criteria of efficiency and savings, and guaranteeing the supply to citizens in terms of quantity and quality. To this end, municipal technicians must have functional tools that allow them to control the correct use of water in all the sectors involved.

Some Spanish city councils that are benchmarks in water efficiency have regulatory texts for water management. This is the case of the Zaragoza City Council, where its Municipal Ordinance for Eco-efficiency and Quality in Integrated Water Management, published in 2011 and recently updated (Ayto.Zaragoza, 2021), includes in a single regulatory text the norms that the Zaragoza City Council has developed in relation to the management of the integral water cycle, including aspects such as guaranteeing the supply and quality of water, efficiency in its use, the promotion of sustainable habits, as well as the citizens' right to information.

Activities. The aim of this action is to develop an Ordinance for the integral management of the water cycle in the municipality of Murcia. This Ordinance will include the basic conditions of the supply and sanitation infrastructures, methods for controlling consumption, criteria for saving and efficiency in the use of water, inspection of discharges, etc. Its development and subsequent implementation will require the **involvement of various municipal services**, including the environment, infrastructure, urban planning and parks and gardens. In addition, there must be clear **leadership**, as well as **full political will**. The Ordinance should include activities, measures and sanctions and an **inspection and**



Photography by EMUASA

Action plan.

control system, with a strong digital component (e.g. installation of smart meters). These measures will apply to the whole of the municipality of Murcia and should be targeted at individuals and/or legal entities (sewerage and water supply services, building developers, subcontractors and private companies, etc.).

Experiences. Murcia's municipal water and sewer system company (EMUASA as per the Spanish) was founded in 1989, with 51% municipal public shareholding and the remaining 49% private shareholding. EMUASA manages the urban water cycle throughout its municipal area and its sustainable development policy implies efficient water management and therefore its commitment to citizens and to the correct sustainable management of water. EMUASA has a discharge control department, dedicated to the control and monitoring of discharges into the sewerage network and especially focused on discharges from non-domestic sources. In 2020, 4,238 companies were controlled, with a total of 1,379 inspections carried out, and from 1989 to 2020, a reduction in the pollutant load in collectors of more than 80% has been achieved.

Benefits. The Ordinance seeks to facilitate the management of the integral water cycle by the competent municipal services, and to achieve an efficient use of water resources, complemented by an integral service to ensure water quality and reduce water consumption as far as possible. It will also incorporate environmental sustainability criteria, aimed at both water saving and the development of new urban spaces to avoid negative impacts on ecosystems.



Photography by Maria Manzanera.



4.2.4. FOCUS AREA: SUSTAINABILITY OF URBAN SPACES

The main objective of SDG 11 is to make cities and human settlements more inclusive, safe, resilient and sustainable, reducing their negative impacts as much as possible. In this perspective, sustainable urban development is one of the challenges of the current decade and a series of actions are needed to achieve it, including the regeneration of degraded areas, the control of city sprawl, the application of bioclimatic principles in new buildings and energy efficiency in existing ones, and the creation, preservation and connection of green and blue areas.

The energy component is particularly relevant. Under the umbrella of the European Green Deal, the Commission has published in 2021 the so-called "Fit for 55" package (European Commission, 2021b), revising the CO₂ reduction targets to 55% by 2030. At the national level and in line with EU policies, the Royal Decree 7/2015 approving the Land and Urban Rehabilitation Law (*Ley de Suelo y Rehabilitación Urbana*) (Ministerio de Fomento, 2015) which includes principles of sustainable territorial and urban development, and the Law 2/2011 on Sustainable Economy (Jefatura de Estado, 2011) stand out. The Spanish Strategy for Local Urban Sustainability (MMA, 2011), is another document of reference.

The focus area "Sustainability of urban spaces" of the MCES includes the following priority lines and actions:



S1. Increasing energy efficiency

S1.1. Creation of "solar neighbourhoods"

S1.2. Local plan for the development and implementation of renewable energies

S2. Increasing resilient, self-sufficient, sustainable, green spaces and improving their connectivity

S2.1. Inventory of degraded areas and recovery proposal from a point of view of interconnectivity

S2.2. Sustainable pruning and crop residue management plan

S2.3. Development of a set of sustainable guidelines for parks and gardens

S2.4. Elaboration of the Green and Blue Infrastructure Strategy

S3. Optimising the urban system

S3.1. 15-minute neighbourhood/district pilot



Increasing energy efficiency. The residential.

sector is responsible for approximately 40% of energy consumption and 36% of CO₂ emissions in the EU. Thus, there is an urgent need to change the way buildings consume energy, making them more efficient and gradually increasing the presence of renewable energies.

Increasing resilient, self-sufficient, sustainable, green spaces and improving their connectivity.

The multiple benefits (social, economic and environmental) that green spaces provide make them essential elements in cities. That is why the increase, connection and sustainable management of green spaces in Murcia (parks, urban gardens, irrigation channels...) are key elements in improving citizens' quality of life.

Optimising the urban system.

The inefficient organisation of the urban system and the insufficient visualisation of its services have a very negative impact on citizens' quality of life, often forcing them to abuse the use of private vehicles. It is therefore necessary to rethink, reconfigure and optimise our urban system to make it efficient and responsive to the real needs of its users.



Photography by María Manzanera.
Zaraiche Palm Grove

Creation of “solar neighbourhoods”

Necessity. In line with the challenge of achieving climate neutrality by 2050 as proposed in the European Green Deal (European Commission, 2019), Spain has also set its climate targets in the National Integrated Energy and Climate Plan 2021-2030 (MITECO, 2020b). This plan aims to improve energy efficiency by 39.5%; that by 2030 renewables will contribute 42% of final energy use; and that 74% of electricity generation will correspond to these energy sources. (MITECO, 2020b).

The legislative development favoured by RD-Law 15/2018 and RD 244/2019 (MITECO, 2019) has led to a boost in the implementation of self-consumption systems powered by renewable energies. For effective implementation at the local level, it is necessary to overcome a series of barriers, including the availability and suitability of space on community roofs.

Activities. This action aims to promote shared solar self-consumption in neighbourhoods. To this end, **photovoltaic plants will be installed on municipal buildings or land.** Neighbours living in the area or neighbourhood defined for the energy community (between 200-500m from the installation) will be able to make use of this renewable energy. An example of this new model of local renewable energy consumption is the city of Valencia with its Local Energy Communities project (Oficina de l'Energia de València, 2021).

For the development of this action, it is firstly necessary to carry out the **Second Municipal Self-consumption Plan**, which includes an estimate of the photovoltaic generation potential of municipal buildings (solar map). The implementation and management of these local, shared energy installations would have to be carried out by means of a public tender. In parallel, the appropriate **legal framework** has to be created, established on the basis of the Plan against Energy and Water Poverty of the municipality, to give priority to citizens included in the register of vulnerable consumers. Interested neighbours and local businesses located in the area or neighbourhood defined for the energy community must be **informed of the conditions** before formalising the self-consumption contract. To this end, **workshops and participatory processes** coordinated by the City Council will be indispensable. In this sense, Murcia City Council will consider the possibility of creating the **Energy**

Community Office, through the Local Energy Agency (ALEM as per the Spanish), in order to carry out a process of social dynamisation and citizen participation in order to facilitate the participation of families, especially if they are vulnerable consumers.

Experiences. The main objective of the municipality of Murcia's 2030 Climate Change Mitigation Strategy (Ayto.Murcia, 2018) is to achieve a 40% reduction in CO₂ emissions compared to the base year 2007, through actions aimed at reducing energy consumption, increasing the use of renewable energies and improving energy efficiency in the municipality. In terms of photovoltaic power installed on City Council premises, there is currently 371 kW of power distributed in 28 installations (Ayto.Murcia, 2018).

Benefits. This action is mainly expected to create solar self-consumption communities, which will lead to the empowerment of citizens, who will directly participate in the energy transition through a collaborative model, reducing electricity consumption bills, helping the most disadvantaged families, and reducing CO₂ emissions.

Local Plan for the development and implementation of renewable energy

Necessity. The present and future of energy in Murcia depends on the implementation of energy from renewable sources. This stems from the high impact of non-renewable sources and the municipality's ideal conditions for the implementation and development of green energies. For example, in the case of solar energy, Murcia has an annual average of 300 days of sunshine, making it one of the municipalities in Spain that receives the greatest amounts of solar radiation. Therefore, the challenge of this action is clear: to decarbonise the municipality of Murcia by increasing the presence of renewable energy sources both at public and private level.

Activities. The increase in the presence of renewable energies must be progressive and take into account that the fact that they are renewable does not imply that they can be implemented everywhere, since such implementation is not exempt from impacts. In this way, 3 areas are considered:

-Private (citizens and communities). As far as possible and within the scope of its competences, the City Council will promote self-consump-



Photography by José M Soriano Disla

tion at individual and community level (see previous action).

-Public. The installation of photovoltaic panels on municipal buildings and land will be promoted. To this end, in addition to the preparation of the solar map of the municipality, the City Council will carry out studies in municipal buildings with photovoltaic installations to assess their condition with a view to possible replacements/extensions. The possibility of introducing monitoring tools for already installed panels will also be studied, especially in the case of old installations.

-Industrial. The City Council, in accordance with current legislation, will ensure the orderly and appropriate development of industrial energy initiatives, such as solar farms, wind farms, green hydrogen generation, etc. The solar map will identify the most suitable areas for photovoltaic installations.

Experiences. Prior to the preparation of this Action Plan, in the Assessment document (Ayto. Murcia, 2020), a municipal list of electricity production facilities from renewable energy sources, cogeneration and waste was provided. Among the installations, solar energy installations stand out, with a total of 516 installations and an estimated production of 169,981 MWh. As stated in the Assessment document, at the municipal level, the City Council has developed/approved a series of plans and strategies that favour the implementation of renewable energies and systems to increase energy efficiency, including the following: Climate Change Mitigation/Adaptation Strategy, Sustainable Urban Mobility Plan (SUMP) and Integrated Urban Development Strategy. The Assessment document also includes private initiatives for the implementation of renewable energies and systems to increase energy efficiency.

Benefits. It is expected that this action will contribute to extending the renewable energy grid in the municipality and popularise its presence and consumption. The benefits are evident and relate to an improvement of environmental quality, especially air quality, contributing definitively to the municipal objectives in the field of emissions and climate change. In addition, this action results in self-sufficiency and availability of energy independently of external factors and economic savings, especially considering the expected increase in electricity prices.

Inventory of degraded areas and recovery proposal from a point of view of interconnectivity

Necessity. Abandoned spaces in urban and peri-urban areas provide us with ecosystem and strategic services, understood in terms of the functions they offer (e.g. recreation, sport, food production, climate regulation, etc.). Despite their importance, the presence of uncontrolled and illegal waste and dumping in these areas is sadly common, resulting in their degradation and in their inability to provide the associated services. It is therefore necessary to identify and restore these areas, working in parallel to prevent the degradation of these and other areas.

Activities. This measure seeks, firstly, to develop an **inventory of the existing degraded areas** in the municipality, as well as to intensify control to **prevent illegal dumping**. From this inventory, those of special interest from the point of view of their importance in the interconnection between existing green spaces will be selected. In these areas, **restoration campaigns** will be carried out in collaboration with neighbours and associations, by means of using autochthonous species.

Experiences. In November 2020, the Murcia City Council organised a Climathon¹⁹ focused on finding ideas to improve the connectivity of urban green spaces with peri-urban green spaces and natural areas. This event not only addressed connectivity, but also aspects related to the conservation, restoration and economic valuation of ecosystem services associated with these spaces. With specific reference to degraded soils, a pioneering experience at municipal level was the *Tejiendo Redes* project which, among other objectives, aims to recover these soils by cultivating them, following agro-ecological approaches.

Benefits. This action is expected to identify and restore degraded areas and prevent the emergence of new ones. Generally speaking, the restoration of degraded areas means that the ecosystem services that depend on them are made available again. In this way, the development of this action will improve public health, reduce pollution levels, mitigate the effects

of climate change and extreme temperatures (heat island effect) and generate economic activity. When it comes to interconnection, spaces between green spaces, their recovery also allows their connectivity, which benefits not only the fauna and flora, but also the citizens.

Sustainable pruning and crop residue management plan

Necessity. The inadequate management of pruning/crop residues is one of the main environmental and public health problems that Murcia has been facing since ancient times. This derives mainly from the widespread tradition of burning, which involves the emission of polluting gases and particles, the risk of uncontrolled fires and, not less important, the loss of a resource which, if incorporated into the soil, improves its physical, chemical and biological properties. The practice of burning has been banned in Murcia (CARM, 2019), so an alternative and sustainable management of these by-products is necessary.

Activities. It is proposed to draw up an **Integral Pruning Collection and Treatment Plan** to extend the current pruning collection contract for the next three years and to propose the collection and composting of prunings in all the municipal districts of the municipality. Specifically, the City Council intends to install containers with integrated shredders in the districts and only collect plant waste from small vegetable gardens and agricultural plots. The aim is, through shredding, to properly manage pruning waste, avoid possible plant health problems and reduce the carbon footprint associated with its transport to the *Cañada Hermosa* treatment plant. Once at the plant, composting of this waste is proposed. This service complements the current service of shredding plant waste on site thanks to an **agreement with the Young Farmers Agricultural Association (ASAJA** as per the Spanish), which is intended to be extended to include the possibility of co-financing the service.

In parallel, the City Council will subsidise the **purchase of small composting machines** (~400 L) to mix pruning waste with other organic waste from plots of around 1 tahulla (1,118 m²), and it will carry out **training activities** for the *“huer-tanos”* (inhabitants or smallholding farmers of the Murcian orchard) on the production of high quality compost. The aim is for this project to act as the seed for a future “oil press” in which the farmers will receive compensation for the delivery of pruning residues that will be used for the production of high quality compost. Another

19. Climathon. <https://climathon.climate-kic.org/>

line of work consists of the production of **high added value bio-products** by the contractor in charge of the management of shredded pruning waste from parks and gardens that are not used as mulch.

For this action to be successful, citizen collaboration is key, thus, a **specific communication/awareness-raising campaign** will be carried out.

Experiences. Pruning and crop residues are being collected in 10 districts through a pilot project initiated in 2020 which involved the placement of a daily container in these districts, extended in 2021 to 40 points of the municipality. Likewise, the City Council established an agreement with ASAJA to set up a free service for shredding and returning crop and pruning waste to the ground. In the case of pruning waste from parks and gardens, the concessionary company returns part of it to the ground as mulch once it has been shredded.

Benefits. This action aims at an adequate management of pruning/crop residues, mainly by returning them to the soil, either directly after shredding or after a composting process. This action promotes, on the one hand, the empowerment of the community through its participation in waste management. On the other hand, the action provides a solution to one of the biggest environmental problems in the municipality and contributes to improving soil fertility and structure.

Development of a set of sustainable guidelines for parks and gardens

Necessity. The existence of green spaces is vital, bringing multiple benefits to urban areas and the citizens who live there. The development and maintenance of green spaces is costly and involves the use of large quantities of inputs (e.g. water and fertilisers), as well as the generation of by-products (e.g. pruning waste). Therefore, and taking into account the increased climatic rigours of Murcia in a context of climate change, it is essential to consider sustainable criteria in their design and maintenance. To date, the consideration of sustainable criteria for the design and maintenance of parks and gardens has been carried out by the City Council's Environment Service as a prerequisite for the authorisation of licences and the development of works in green spaces, mainly from the point of view of the use of native species. However, when we talk about sustainable criteria we are not only re-



Urban garden next to Bendamé irrigation ditch in Cuadalupe
Photography by Tomas García

ferring to the choice of autochthonous species and, therefore, adapted to the demanding conditions of our climate and soils, but also to their distribution, choice of irrigation systems, adaptation of the soil, correct use of mulch, monitoring systems, management of by-products, use of inputs, etc.

Activities. This action aims to develop a **guidance document for the establishment of sustainability criteria** that should govern the design, execution, maintenance and management of green spaces. This document will enable the future development of **technical manuals** for the practical application of these sustainability criteria, as well as their inclusion in the specifications for the drafting of projects, execution of works and conservation of green spaces. Some of the aspects to be included in the guide are detailed below: design according to use (which will be different depending on the location, population living in the surrounding area, type of urban development in its surroundings, etc.), irrigation/recirculation of water, etc., and the use of the watering/circulation system), irrigation/flow recirculation, choice of species (favouring native species and those that can best adapt to current and future conditions, helping to minimise the impacts of climate change), replacing water-intensive cover with natural grasslands, fertilisation (optimised, favouring the use of local resources), sustainable soil management practices, integrated pest management and other activities that contribute to naturalising and enriching native biodiversity, pruning management, etc.

Experiences. For the development of this action, the City Council has previous experience in the collection, multiplication and planting of native species through initiatives developed with different organisations, such as the one carried out in the municipal nursery *El Mayayo*.

Benefits. With the creation of this guide, the aim is to ensure that both new and existing green spaces are developed and/or maintained in accordance with a series of sustainable criteria. On the one hand, a reduction in the use of inputs (water, fertilisers, pesticides...) is expected, closing as far as possible the cycles of matter, water and energy. On the other hand, this action also envisages a sustainable and circular management of the waste generated. Finally, the aim is also to adapt green spaces to the needs of users and to increase biodiversity by enhancing the value of local varieties, bringing them closer to the public and helping to minimise climatic rigours.

Elaboration of the Green and Blue Infrastructure Strategy

Necessity. In urban areas, it is not only essential that there are a large number of green spaces, but also that they are properly connected. If this connection is not provided, the ecosystem services provided by green spaces are seriously affected, and with them the citizens, living beings and ecosystems that depend on them.

Connectivity between green spaces is one of the fundamental pillars of the so-called 'green infrastructure', which according to the European Commission's Communication 'Green Infrastructure: enhancing Europe's natural capital', can be defined as a "strategically planned network of natural and semi-natural areas and other environmental elements designed and managed to deliver a wide range of ecosystem services" (European Commission, 2013). Importantly, the concept also encompasses blue spaces (aquatic ecosystems). This Communication lays the foundations for an EU strategy on green infrastructure to help conserve and enhance our natural capital. At national level, the Spanish government has recently approved the national strategy (MITECO, 2021a), which will act as a reference framework for the drafting of green infrastructure strategies at regional and local level.

Activities. The main activity for the development of the present action consists in the **elaboration of the local Green Infrastructure Strategy**. The aim of the Strategy is to integrate and connect the urban parks and green spaces with the existing and potential landscapes and spaces of natural value in the municipality, planned and designed to provide strategic functions for the city and also for the needs of the neighbourhoods and districts. This green infrastructure will also connect the city and districts with the surrounding cultural and landscape elements, the Segura River and the Orchard. The Strategy will go beyond the ecological component and will also embrace the culture, identity and idiosyncrasy of the municipality, as well as the blue infrastructure that is so characteristic of Murcia (the Segura River and its network of irrigation channels). In addition to defining the interconnected green network of public or private spaces in the territory, **priority actions/interventions and design guidelines** will also be developed.

Experiences. Murcia is developing a large number of projects related to the structure and development model of the municipality. In this sense, an Action Plan for the Murcian Orchard has



Photography by José M Soriano Disla

been drawn up which includes major backbone actions, such as the *Murcia Rio* (Murcia River) project, together with other initiatives for the recovery of heritage, mobility, culture, agriculture, landscape and the environment. It is also worth mentioning the Strategies for Mitigation and Adaptation to Change. In November 2020, the City Council also organised a Climathon (the world's largest climate change event) which focused on identifying solutions and ideas for the municipality's green infrastructure network.

Benefits. The benefits expected from the implementation of the Strategy are the following: improving the connection of people through public spaces and valuable landscapes, reinforcing the identity and image of the municipality of Murcia, promoting biodiversity, preserving ecosystem functions, increasing the resilience of the municipality against the advancing effects of climate change and reducing costs in management, investments and maintenance.

15-Minute neighbourhood/district pilot

Necessity. The current city model has been conceived by and for the private car. This has led, among other negative impacts, to the concentration of basic services/functions in certain areas and the existence of population centres/neighbourhoods devoid of them. In the latter, it is difficult to access these basic services/functions on foot or by low-impact means of transport. In some cases, the problem does not lie in the absence of services, but in the fact that they are not visible or not sufficiently exposed. This is particularly evident in Murcia, especially given the size of the city and the historical importance of the city of Murcia as a service provider. However, a modern and circular city must have the capacity to organise itself so that these services are accessible quickly and using sustainable means, regardless of the neighbourhood or district of residence.

Activities. This action proposes to pilot the concept of the "15-minute city". This concept was recently popularised in Paris (Moreno et al., 2021), and is defined as a city where citizens have access in 15 minutes, using active mobility systems, to all the basic services/functions they need for the normal development of their daily lives. The experience to be carried out consists of starting to develop this idea at neighbourhood/district level. For the development of this action, the first step will be to **select the district/district** where the pilot will be developed. In the chosen area, a

series of **activities** will be carried out: identify, visualise and advertise the existing basic services, elaborate a study for a more efficient use of the available infrastructures, bring the possibility of using active means of transport closer to the pilot area, allow the possibility of coworking, etc.

Experiences. What is proposed in this action is closely related to the enhancement and provision of services to districts/neighbourhoods with fewer services. The Murcia City Council has been working along these lines for several years, for example, through the activity of the Councillorship for Districts.

Benefits. The present action is intended as the seed for the extension of the 15-minute city concept to the rest of the municipality. As the concept is very ambitious and disruptive, it is necessary to start on a small scale through a pilot. In this way, it is hoped that the action will contribute to reducing the use of high-impact transport and, at the same time, visualise and enhance existing services in the chosen study areas. The benefits to be derived are innumerable, including: reduction of the time needed to access services, development of the local economy, reconciliation of work and family life, improvement of physical fitness and access to leisure and cultural activities, etc.

Photography by Chema Román





4.2.5. FOCUS AREA: MOBILITY

The effective achievement of sustainable mobility is key to facilitating the transition to a circular economy. This is because the current mobility scheme in cities is highly dependent on fossil fuels and generates large amounts of emissions, which is far from the objectives of the circular economy. Moreover, mobility actions have a decisive impact on other areas (e.g. consumption and sustainability of urban spaces). For this reason, the mobility focus area is included in this strategy, being articulated through tools commonly used in circular approaches (e.g. digitalisation/Smart City, servitisation, sharing platforms, logistics/smart planning); leaving infrastructure development (e.g. bike lanes) and public transport management out of the scope of the strategy.

The national reference framework to guide sustainable mobility and decarbonisation policies is the Spanish Sustainable Mobility Strategy (MITECO, 2009), updated in 2020 with the definition of

the objectives for 2030 (MITMA, 2020). The priorities of the current Strategy are to decarbonise the economy and respond to climate change, to adopt and integrate new technologies, to manage the increasing concentration of population in large cities and to prioritise investments with social benefits. The Sustainable Urban Mobility Plans (SUMP), although not compulsory, are regulated by Law 2/2011 on Sustainable Economy. The SUMP of the municipality of Murcia drawn up in 2013 also incorporated the provisions of the Municipal Bicycle Master Plan. At present, The Murcia City Council is working on the new model for the reorganisation of the municipal urban transport lines through the initial approval of the New Public and Collective Transport Network by Urban Bus Service Project of the City of Murcia, with a view to drawing up the new Murcia 2030 Mobility Plan.

The focus area “Mobility” of the MCES includes the following priority lines and actions:



Focus Area
Mobility

M1. Prioritising sustainable and low impact transportation: walking, sustainable personal mobility vehicles, collective transport

M1.1. Local vehicle-sharing platform

M1.2. Package of measures to promote the acquisition and use of sustainable vehicles

M2. Organising the space in order to encourage sustainable mobility

M2.1. Establishment of low-emission zones

M2.2. Maximisation of the use of new technologies for a sustainable mobility



Prioritising sustainable and low-impact transportation: walking, sustainable personal mobility vehicles, collective transport.

One of the main obstacles to achieving sustainable mobility is the disproportionate presence of high-impact motorised vehicles. It is therefore essential to focus on active mobility, low-impact vehicles and ridesharing.

Organising the space in order to encourage sustainable mobility.

In addition to the predominance of high-impact motorised vehicles, urban space is not designed to accommodate sustainable mobility. This priority line focuses precisely on this urban space, on how to intelligently/efficiently organise it to support sustainable, low-impact mobility.



Photography by Chema Román



Photography by Chema Román

Local vehicle-sharing platform

Necessity. Most journeys in private vehicles at the municipal level, especially to access workplaces/educational institutions, are made with low occupancy (one or two people), which is one of the main problems that cities have to address from a traffic point of view. Knowing routes and journeys in advance and connecting users through versatile and innovative platforms represents a huge opportunity to share these journeys and reduce the number of vehicles on the road.

Activities. This action will involve the creation of a **local platform** where users can enter their journeys and access times to work/study centres, so that they can organise themselves to share these journeys. The platform will be promoted on the Murcia Circular website and social networks.

Experiences. The best known experience is that of commercial car-sharing platforms between cities, which have been operating for many years with very good results.

Benefits. This measure is expected to reduce the number of cars in our municipality and with it all the benefits that derive from it, such as a reduction in emissions, noise, number of accidents, as well as economic savings for users.

Package of measures to promote the acquisition and use of sustainable vehicles

Necessity. The motor vehicle (petrol/diesel) is the real protagonist of mobility in the municipality of Murcia. According to the SUMP, the modal share in Murcia is: 52.4% private vehicle, 38.8% active mobility (pedestrian and bicycle) and 8.8% public transport. In recent years, the use of sustainable modes of transport has been increasing. It is therefore essential to support and encourage this trend.

Activities. The proposed measures aim to promote the use of all types of sustainable vehicles: bicycles, scooters, electric vehicles, etc. To this end, firstly, the City Council will publish **grants and incentives** for their acquisition and use. With regard to cycling, one of the activities will be to initiate **dialogues with bicycle workshops and shops** in order to turn them into “Reference Centres for Cyclists”, providing additional services to promote the use of bicycles, such as bicycle rental, organisation of training/aware-

ness-raising workshops, providing information on existing routes and lanes, etc. The City Council will **increase the visibility of these partners** through communication campaigns, as well as on the website of the Bicycle Office, which could be renamed the Sustainable Mobility Office in order to become the reference point not only for cycling, but for all means of sustainable mobility. The City Council will acquire/contract a **fleet of electric scooters** for hire available to the public. In order to facilitate the use of electric vehicles, the City Council will increase the number of **charging points**, some of which will be solar-powered, as well as the number of parking spaces reserved for them. Sustainable mobility vehicles will be regulated through the Mobility Ordinance in the Municipality of Murcia.

In order to effectively achieve sustainable mobility, one of the most important challenges is to raise awareness, especially among young people through talks, courses, workshops and road safety activities with the participation of all the agents involved: City Council, traffic police, local police, driving schools and associations.

Experiences. The Murcia City Council has a long history of promoting the use of sustainable vehicles, as demonstrated by the creation of the Bicycle Office and the adoption of a number of Strategies and Plans including: SUMP (2013), *Estrategia Local del Vehículo Eléctrico*, *Plan de Acción de la Bicicleta* (the Local Electric Vehicle Strategy, Bicycle Action Plan) (2017), the Climate Change Adaptation Strategy (2018), and the Climate Change Mitigation Strategy (2019).

Benefits. The expected result is an increase in the use of sustainable vehicles to the detriment of traditional means of combustion, which will result in reduced emissions, noise and accidents. In the case of bicycles and scooters, the action will also result in improved physical fitness of users and recovered urban spaces for other uses.

Establishment of Low-Emission Zones

Necessity. It is clear that motorised traffic is one of the most impactful urban activities. The most obvious is related to emissions of greenhouse gases and other harmful compounds (e.g. particulate matter), which are directly related to traffic density, speed and the presence of combustion vehicles with high emission levels. The

identification and delimitation of Low Emission Zones (LEZs) is presented as one of the most promising alternatives to contribute to solving this problem. LEZs are understood as delimited areas in which, among other measures, the circulation of vehicles with gas emission standards higher than the limit set by the European Union is restricted and a maximum speed limit is established. In this regard, the Ministry for Ecological Transition and the Demographic Challenge has recently published an instruction on LEZs in compliance with the new Law on Climate Change and Energy Transition (Jefatura del Estado, 2021) which compels municipalities with more than 50,000 inhabitants to establish them by 2023.

Activities. The solution lies in **identifying and defining LEZs**. The measures to be implemented must be in line with European and national guidelines, carrying out holistic actions that not only involve traffic calming and the promotion of sustainable mobility, but also serve to reconnect the city with its surroundings and enhance the value of the attributes of peri-urban areas. The definition of LEZs should be accompanied by **specific dissemination/awareness-raising campaigns**.

Experiences. The Murcia 30²⁰ Plan can be considered as one of the pioneers in this line in the municipality of Murcia. This plan was developed to complete the Bicycle Master Plan in the Municipality of Murcia, and its main objective was to improve road safety and protect cyclists and pedestrians in areas open to traffic through the implementation of areas with speed limits of 30 km/hour, including vertical and horizontal signage that would alert cyclists to the presence of cyclists. A pilot study was also carried out in the area of San Nicolas Street to evaluate the form and expected benefits of the implementation of a LEZ. This study, carried out by the Murcia City Council in collaboration with the Chair of Mobility and Sustainable Transport of the Catholic University Saint Anthony of Murcia (UCAM), made it clear that this measure will be very positive in terms of traffic density and emissions, which is why the area comprised between the streets *San Nicolas* and *Riquelme* has been the first to be chosen as a traffic restriction zone and proposed for a future LEZ.

Benefits. This action is expected to identify and implement LEZs as a way to contribute to reducing the levels of air and noise pollution, as well

as other impacts associated with traffic, improving the quality of air in particular, and of life in the city in general. At the same time, this action is a stimulus for energy efficiency in transport, promoting its sustainability. Finally, the LEZs are real examples, as islands within cities, of the benefits associated with these actions, which are expected to have a replication effect in other areas of the city.

Maximisation of the use of new technologies for a sustainable mobility

Necessity. It is clear that our cities need to change their mobility patterns in a sustainable way. In this transition, digitalisation and technological progress are essential. Thus, the use of these tools must be maximised and integrated into the daily management of mobility.

Activities. This action proposes to **maximise the use of “Smart” tools** in mobility management for an effective transition towards sustainable mobility strategies. Possible tools that could be used include: sensors for traffic-related parameters (emissions, noise and congestion), advanced simulation software for transport logistics organisation (e.g. for route optimisation), tools for traffic-related environmental impact diagnosis (e.g. carbon footprint calculation), artificial intelligence-based systems, sharing/servitisation platforms, algorithms for multivariate data management (e.g. based on big data), network management systems (e.g. internet access).

Experiences. Murcia City Council has participated in a large number of initiatives in the Smart City/mobility field. This is, for example, the case of the projects MyMurcia-Murcia Smart City, USER-CH²¹. The City Council also has traffic simulation tools to be able to virtually evaluate different alternatives for traffic management before putting them into practice.

Benefits. This action aims to contribute to the development of a “Smart” city through its commitment to new technologies and sensor systems, facilitating an effective transition towards a more sustainable mobility that causes less impact. This action is envisaged as a support tool in decision-making, as far as possible in a rapid or real-time manner. This stems from the possibility of using multiple sources of information and virtually evaluating actions/initiatives before they are implemented. The adoption of this action will also allow the development of early

20. <https://www.oficinabicicletamurcia.com/>

21. Plan Murcia 30. <https://www.oficinabicicletamurcia.com/plan-murcia-30/>

warning or detection systems to anticipate problems before they become evident.





4.2.6. FOCUS AREA: CROSS-CUTTING POLICIES

Circular economy is a multidisciplinary and globalising concept, hence, for an effective transition, it is essential to address it through cross-cutting approaches. Thus, the actions proposed in this strategy must be properly coordinated and aligned with other actions and policies in order to guarantee the expected effect and avoid repeating unnecessary efforts. Along these lines, the Spanish Circular Economy Strategy (Gobierno de España, 2020) identifies a series of cross-cutting instruments that are also considered essential for an effective transition towards a circular economy: regulatory, economic, research, development and innovation instruments, and instruments for participation and raising awareness.

These instruments, as well as the specific cross-cutting measures proposed by the Spanish Federation of Municipalities and Provinces (FEMP, 2019), have been taken into account in the drafting of this strategy and the actions that focus on Cross-cutting policies.

According to the previous Assessment document (Ayto.Murcia, 2020), the focus area "Cross-cutting policies" is perhaps the one that offers the most scope for action since, despite its importance, it is the least considered. Thus, the focus area "cross-cutting policies" of the MCES includes the following priority lines and actions:



P1. Coordinating/aligning Strategies/Plans/Initiatives

P1.1. Creation of the web platform "Circular Murcia"

P2. Capitalising circular actions as examples of good practices

P2.1. Creation of a Hub of disruptive, circular and innovative enterprises

P3. Developing effective, current and continuous public participation strategies

P3.1. Adoption of innovative participatory approaches

P4. Developing training and/or awareness-raising activities

P4.1. Development of the circular awareness-raising campaign

P5. Developing municipal funding calls to boost circular economy projects

P5.1. Development, identification and visualization of funding calls for circular economy projects

P6. Promoting Sustainable and Innovative Public Procurement

P6.1. Development of the municipal Sustainable Public Procurement Manual

P7. Improving the access to information and monitoring

P7.1. Measures to improve the access to information and its use, as well as to increase information availability



Photography by Chema Román

Coordinating/aligning Strategies/ Plans/Initiatives.

The success of any strategy lies, first and foremost, in the effective implementation of its action plan. Coordination and alignment with other strategies/plans/initiatives already in place is also vital from the point of view of resource efficiency, avoiding duplication and allowing actors to make the most of future opportunities. In this way, this line becomes one of the most important in the present strategy.

Capitalising circular actions as examples of good practices.

Often, the most successful actions are those that build on previous experiences. In Murcia there are a large number of initiatives related to the circular economy that are already underway and that need to be visualised and capitalised on as an example for the development of new ones.

Developing effective, current and continuous public participation strategies.

Despite the large number of participatory initiatives being carried out in Murcia, their management from a cross-cutting point of view, needs to be improved. Among other aspects, participation processes should be articulated from the beginning of the projects, and not when they are already underway or finished. Also, as far as possible, the different processes should be coordinated/aligned with other related processes.

Developing training and/or awareness-raising activities.

The importance of this type of activities for the success of any process is well demonstrated. Awareness-raising must start with the City Council itself, setting an example to citizens and businesses through its actions and praxis. In the analysis prior to the Assessment document, citizen awareness was identified as a weakness, but citizen commitment was considered one of the municipality's strengths. It is in this context that this priority line is inserted, the main objective of which is the development of training/awareness-raising activities from a Cross-cutting and coordinated point of view.

Developing municipal funding calls to boost circular economy projects.

Circular economy projects and initiatives often go hand in hand with innovation and technological progress, which in most cases implies the need to find external sources of funding, especially if carried out by small companies or start-ups. Thus, the main objective of this priority line is to visualise and facilitate access to these sources of funding.

Promoting Sustainable and Innovative Public Procurement.

City Councils are large consumers of resources and services, which are procured through Public Procurement, which we intend to be Sustainable and Innovative, including and considering sustainable and circular requirements.

Improving the access to information and monitoring.

Another cross-cutting and essential component for the success of any municipal initiative is to guarantee access to information, so the objective of this priority line is to eliminate existing obstacles to access to this information.



Photography by Chema Román

Creation of the Web Platform “Circular Murcia”

Necessity. In the digital era in which we find ourselves, the problem is not so much the existence of information, but that it is accessible, contrasted and reaches the right recipients. Moreover, in the particular case of Murcia, there are a large number of initiatives, strategies, plans, businesses, etc., that need to be visualised, coordinated and aligned. In this sense, the development of web platforms and systems to access and share information is essential. In this way, the solution necessarily involves identifying and visualising the information, compiling it on a server or platform and making it accessible to users.

Activities. This action envisages the creation of a **web platform** called “Circular Murcia”, which will bring together all the information related to the circular economy in the municipality of Murcia. Firstly, a website with the following menu items is envisaged: description of the initiative, circular businesses, circular projects/initiatives, agenda/events, resources (including access to related strategies/plans/legislation) and participation (see participation action). The possibility of including a municipal **platform where offers and demands** for second-hand materials/products and services can be published will also be studied. Associated with the creation of the website, a **unique and representative branding** of the MCES will be created, as well as a **specific campaign** to broadcast the new platform.

Experiences. At municipal level there are several platforms that will be used as a reference for the development of the Circular Murcia website. This is, for example, the case of the *Murcia Ciudad Sostenible*²² (Sustainable Murcia) website or the one corresponding to the *Oficina de la Bicicleta*²³ (Municipal Office of the Bicycle).

Benefits. This action will result in the creation of a platform to visualise and capitalise, among other elements, the initiatives, projects, businesses, plans and strategies related to the circular economy that are underway, and to ensure the connection/synergy/complementarity between them. The benefits for those responsible for these experiences are evident, understood from the

point of view of increasing their impact, access to customers, potential users, etc. Users will also benefit from access to a platform where they can find information on businesses, initiatives, conferences, workshops, among others; that are of interest to them. From a more generic point of view and as the context is circular, the creation of the platform will allow the creation of a market for circular products and support circular business models.

Creation of a Hub of disruptive, circular and innovative enterprises

Necessity. In such a competitive society, marked by the impact of covid-19, attracting talent, promoting innovation and the contribution of disruptive ideas under the prism of the circular economy are essential. In addition, it is necessary to give greater weight to the industrial (and digital) sector, which in Murcia is below the national average, both in terms of the number of companies and employability. In this way, we are talking about reindustrialising the municipality, revitalising and diversifying the economy through circular, disruptive, sustainable and innovative companies. The climate is favourable, in fact, the Region of Murcia has one of the highest rates of entrepreneurship in the country as evidenced by the creation of two initiatives to promote technology-based entrepreneurial companies, one private, *Acho Valley*, and the other driven by the regional government, *Zakut Innovation Hub*.

Activities. This action proposes the creation of a Hub, understood as a physical space based in the Municipal Initiatives Centre (CIM), where innovative companies undertake their projects, interact and generate synergies to respond to the challenges they face. To attract companies and funds, the brand “Murcia Business Circular Hub” will be created. The Hub will have the following areas or services:

-**FabLab** Space for companies and repair area for citizens.

-**Coworking/accelerator space for startups and new businesses** that offer the best solutions to the proposed challenges, and may receive prizes and distinctions for this. There will be pioneering initiatives such as *Acho Valley*.

22. <http://www.murciaciudadsostenible.es/es/>

23. <https://www.oficinabicicletamurcia.com/>

-**Consolidated companies and leaders in circular economy** which will form an Advisory and Mentoring Committee and will collaborate with other organisations in the annual proposal of challenges in different sectors to be solved by the innovative companies.

-**Catalyst space**, where events, activities, brainstorming, etc. will be organised. For holding events, such as fairs and exhibitions, the CIM has an **open-air space equipped with multiple services**.

-**Training/tools in circular economy** and for innovative companies. Murcia's European Centre of Enterprises and Innovation and the Development Institute of the Region of Murcia (CEEIM as per the Spanish and INFO as per the Spanish, respectively) will collaborate with the event.

Experiences. The Hub can be considered a pioneer initiative in the municipality of Murcia. Previously, the CIM, a 1,500 square metre municipal space for entrepreneurs and their business initiatives, has housed/driven some of the areas that the Hub will develop. In particular, it has facilitated the establishment and consolidation of recently created business projects. Another centre located in the municipality, the CEEIM, promotes, encourages and stimulates the attraction of intelligent capital for the creation of innovative and technology-based companies.

Benefits. Through the Hub, the City Council hopes to attract and fix talent, generate innovative, disruptive and sustainable ideas, promote companies, solve challenges, among others. In short, the aim is to generate the right ecosystem to reindustrialise and diversify the local economy, achieving a "pull" effect that will serve to create a circular culture in the City Council. Specifically, the aim is to position Murcia as a benchmark for green and technological business models and a pole of attraction for investment. In this way, the initiative will contribute to the municipal objectives in economic, entrepreneurial and environmental matters.

Adoption of innovative participatory approaches

Necessity. In line with the recommendations of bodies such as the European Commission and OECD for the effective implementation of Cir-

cular Economy Strategies and their governance mechanisms, public participation must be ensured. The challenge is to achieve effective participation by all stakeholders through innovative approaches and mechanisms.

Activities. It is proposed to **improve the participation** of the different stakeholders in circular economy issues through the governance scheme proposed in this strategy (through the creation of a public participation body) and the Murcia Circular platform. The multi-stakeholder approach will be developed using as a germ the **Biowaste Club** that will be created in the European project HOOP²⁴, of which the Murcia City Council is a partner, and which in the future will be called Circular Clubs. Briefly, the Biowaste Clubs are configured as forums for participation, debate and monitoring of actions at municipal level in the field of circular economy involving all relevant actors.

Experiences. The City Council has a specific platform where the active participation processes are hosted. In addition, the City Council will benefit from the experience of the Biowaste Club that will be developed in the HOOP project.

Benefits. Above all, this proposal aims to increase and facilitate the participation of all relevant actors in the circular economy. Being involved is fundamental for the development of a healthy and balanced society, and it also means empowerment and provides a valuable tool for tackling problems by having multiple points of view. Finally, participation also serves to prevent problems and derives from the involvement of relevant actors in the co-development of proposals HOOP project.

Development of the circular awareness-raising campaign

Necessity. The development of adequate awareness, dissemination and communication is key to any strategy, even more so if it is a circular economy strategy, a concept that, although it has its roots in the past, is presented as a new alternative paradigm to the linear economy. Moreover, the circular economy is cross-cutting in nature

24. Proyecto HOOP. <https://hooproject.eu/>

and is present in practically all of the municipality's areas of action. Environmental education is present in campaigns of the Murcia City Council, but they tend to be monothematic and are rarely connected. Thus, the challenge lies in the design of a circular awareness-raising campaign that brings together several topics conveniently aligned/coordinated so that the message can reach the intended audience.

Activities. The development of a **circular economy awareness-raising** campaign covering all the issues addressed in this strategy is envisaged. In principle, campaigns are planned for each of the focus areas: consumption, waste, water, sustainability of spaces, mobility and cross-cutting policies. In this way, the municipality will have its own genuine material on circular economy and at the same time, **it will work with other campaigns** that are already underway (e.g. campaigns on waste prevention and separation, water consumption, food waste, etc.) so that circular aspects are considered and aligned with the present campaign.

Experiences. As mentioned above, the City Council and its contractors have developed numerous awareness-raising campaigns covering different topics related to the circular economy. This is, for example, the case of the environmental education programme of the Municipal Environmental Service, which has been running for 25 years. Also noteworthy are the waste education campaigns developed by Ferrovial, Ecoembes and the European project VALUEWASTE, as well as EMUASA in regard to water.

Benefits. In any awareness-raising campaign, it is expected that the message to be conveyed reaches the target audience in the right way, and that this message has the expected effect. In the specific case of this campaign, in addition to this objective, the aim is to clearly state the concept of circular economy as well as its integrating and multidisciplinary character, and that this serves to improve the acceptance and consumption of products and the adoption of circular habits. Likewise, the awareness campaign aims to increase the collaboration and involvement of citizens in circular economy issues in particular, and in environmental issues in general. In short, the campaign is intended to contribute effectively to facilitating the transition towards a circular economy, and to this end, the training, information and awareness-raising of all stakeholders is key.

Development, identification and visualisation of funding calls for circular economy projects

Necessity. Circular economy projects are often associated with disruptive and innovative approaches and the development of new technologies. For the development of these projects, especially in the case of small companies and start-ups, access to external sources of funding is essential, which is complicated and highly competitive. Thus, we are faced with a problem of access to these funds and to information on the calls for proposals that regulate them. It is necessary to identify, visualise and facilitate access to these lines of aid.

Activities. The proposed solution involves **identifying funding programmes for the development of circular economy projects** and bringing this information together in a single, easily accessible place, such as the Circular Murcia website presented above. This will include both calls for proposals directly related to the circular economy, as well as other more generic ones that include projects in this line. In addition to identifying lines of aid, this action also aims to include the circular economy as one of the **lines to be financed in municipal calls for proposals.**

Experiences. The Murcia City Council has a large number of calls for proposals that can finance circular economy projects. This is, for example, the case of the Competition of Business Projects, which aims to help the consolidation of existing companies and entrepreneurs in Murcia in the search for business opportunities and ideas. In its 2021 edition (29th edition), the competition distributed a total of €80,000 in prizes.

Benefits. The adoption of this action aims to provide those interested in obtaining funding for their circular economy projects and initiatives with clear and reliable information on the possibilities that exist. The benefit is clear as it facilitates access to funding for the development of circular economy projects.

Development of the Municipal Sustainable Public Procurement Manual

Necessity. According to data from the Public Procurement Observatory²⁵, public procurement in Spain is around 18.5% of GDP. In this way, and according to the Green Public Procurement Plan 2018-2025 (MPR, 2019), city councils have a lot of power to facilitate a market for circular products and promote the adoption of green criteria in companies through their consideration in the different phases of the procurement of certain products, works or services.

Activities. The solution to include sustainable criteria in public procurement begins with the development of a **Municipal Sustainable Public Procurement Manual**, which is under the same umbrella as green or circular procurement. For its elaboration, the City Council will be based on the manual developed by MITECO and the guidelines set by the EU in this regard. In this way, the general criteria for action include the following: increasing the participation of SMEs, valuing the useful life in the purchase of materials, encouraging the purchase of secondary raw materials, as well as promoting the contracting of goods, services and companies that adhere to environmental certification/management systems. This action does not include Innovative Public Procurement, which will be incorporated in subsequent revisions of the Action Plan.

Experiences. The City Council's experience in considering circular and sustainable criteria is limited to their inclusion in some Public Procurement processes. In addition, the City Council has a Procurement Platform and is a member of the Platform for Public Sector Procurement (PCSP as per the Spanish). However, there is no Manual that sets out the guidelines for Sustainable Public Procurement. This manual, which is the objective of this action, has already taken its first steps and is currently in draft form.

Benefits. It is hoped that this measure will provide the City Council's Procurement Service with a clear and concise reference document that allows the consideration of circular criteria when

carrying out such actions. Due to the importance of public procurement, this action is intended to enable the City Council to act as a driver for the necessary shift towards a circular economy, providing a market and a safe way for circular products to enter the municipality and ensuring the adoption of circular criteria in procurement.

Measures to improve the access to information and its use, as well as to increase information availability

Necessity. We live in an age of information and abundance of data, but sometimes it is very difficult to access and interpret them. Other problems stem from an excess of information and the difficulty of accessing quality information. Access to information and transparency on the part of the City Council are therefore key to the effective implementation of the circular economy. This is because the circular economy pursues a paradigm shift, for which it is necessary to know our starting point and how we monitor the transition. In addition, the availability of data builds trust, in this case from citizens towards their local institution. The City Council has made important efforts in this direction by making public a large amount of data on the municipality. However, it is necessary to continue working along these lines, providing more data, increasing the frequency with which it is updated, improving access to it, etc.

Activities. As the City Council already has the right tools in place for citizens to access information, the solution is to **publicise it, improve access and effective use** and, in the specific case of the circular economy, to **include related indicators**, benchmarks, information, etc.

Experiences. The Murcia City Council has the portal *Murcia en Cifras*²⁶ (Murcia in Figures) through which a multitude of data on the municipality can be easily consulted. Specifically, in its statistical catalogue there is information on demographic data, green spaces, urban environment (waste and air quality), consumption of supplies, social welfare, etc. Within this portal we can find the "La Asomada" observatory, an instrument of knowledge and analysis of the socio-economic reality of the municipality of Murcia that provides support and technical as-

25. Observatorio de Contratación Pública. <http://www.obcp.es/>

26. Murcia en cifras. <https://murciaencifras.es/>

sistance to the City Council for its own planning and internal operation and makes available to all those interested agents the information transmitted through its dissemination channels. In addition, since 2011, the City Council has had the Municipal Activity Information Office, which offers information transparency and better access to information. This office is responsible for monitoring municipal actions and initiatives to incorporate municipal information into the web portal.

Benefits. The main aim of this action is to ensure effective access to information for all stakeholders, building trust and enabling the effective monitoring of actions, which is a prerequisite for an effective transition to a circular economy.





5.

**MONITO-
RING AND
GOVER-
NANCE
PLAN**

At the beginning of this document, the ambitions of MCES have been defined in terms of objectives in the short (2025), medium (2030) and long term (2050). In order to achieve these objectives, it is necessary to define “how” to achieve them and “who” will be in charge. The “how” can be understood as the Monitoring Plan and those in charge is described in the governance structure to be adopted.

Monitoring Plan. The main challenge of this plan is to define how to achieve the objectives set out in the strategy. To this end, the objectives of the Monitoring Plan are the following: 1) to evaluate the degree of compliance and success of the actions defined in the Action Plan through a review process, and 2) to propose the updating of the actions and the definition of new ones.

1) Evaluation. In line with the way international organisations such as the United Nations and the European Commission work with this type of document, a complete review of the Action Plan will be carried out by 2025, in which the effectiveness, success and degree of compliance of the actions will be evaluated through the monitoring of the indicators defined for this purpose. The analysis will not only take into account the degree of success/compliance of the actions, but will also take into account other aspects such as legislative advances, updating of priorities, etc.

In parallel, and in order to ensure the implementation, success and degree of compliance of the Action Plan, it will be continuously evaluated and monitored in accordance with the governance scheme proposed in this section.

2) Update and/or Definition of New Actions. Based on the analysis carried out during the evaluation phase, the possible updating of some of the actions will be considered, as well as the definition of new ones, which will form part of a new Action Plan for the period 2025-2030. The process will be repeated over time to ensure the achievement of the medium and long term objectives, while ensuring that changing circumstances and needs are taken into account.

Governance. Once the Monitoring Plan has been defined, it is necessary to identify who will be in charge of implementing the strategy. The transition towards a circular economy is not possible without the implementation of an innovative and shared governance system. According to the RAE (Royal Spanish Academy, as per the Spanish), governance is by definition shared and is understood as “the art or way of governing that

aims to achieve lasting economic, social and institutional development, promoting a healthy balance between the State, civil society and the market economy”. In this way, governance requires collaboration between the different actors to ensure, in our case, an effective transition towards a circular economy. At the municipal level, a paradigm shift is therefore necessary in the way of governing through innovative formulas in which the different actors involved interact, participate and make decisions, with the MCES being a unique opportunity to bring about this change.

“(...) to achieve these objectives, it is necessary to define “how” to achieve them and “who” will be in charge”

For the development of a governance system, it is first necessary to define the role of each of the key actors:

City Council: leads the process and is responsible for the development of most of the actions, monitors compliance, acts as a reference/example and facilitates the development of circular initiatives by other actors.

Enterprises: companies are expected to incorporate circular economy innovation as a catalyst for their development, adapt their processes from a circularity perspective and develop circular business models. In addition, it is also expected that pioneer companies (and entities) in terms of circular economy will act as an example/reference, allowing their success stories to be extrapolated and replicated.

Entities: of the different entities of various kinds operating in the municipality of Murcia, their participation, proactivity and proposal/development of circular economy initiatives is expected, as well as the contribution of knowledge and experience.

Citizens: the transition towards a circular economy model involves the participation of all, with citizens playing a key role. This participation can be carried out from different angles: participation in circular economy initiatives promoted by other actors, development of their own initiatives, sustainable, circular and local purchasing, waste separation, reduction of consumption, prioritisation of the use of sustainable means of transport, etc.

Once the roles have been defined, the next step is to define how to implement them and the relationship between the actors. The City Council, in its role as promoter/leader of the MCES, is responsible for defining how this process will be carried out to ensure the effective transition to a circular economy. Although The Murcia City Council has experience in the development of this type of approach, the proposed scheme, together with the actions within the focus area “Cross-cutting policies”, can be considered as pioneering, and has the governance conditions that reference bodies such as the OECD recommend (OECD, 2020). To this end, a series of bodies and committees have been defined, whose composition, responsibilities and functioning are described below and illustrated in Table 4. The proposed governance system will be set up at the same time as the implementation of the Action Plan begins. One of the first functions will be to review the estimated budget for each ac-

tion and allocate the corresponding budget line in the next municipal budgets, an exercise that will be repeated for each of the years of the Action Plan.

Open Body

Composition: This body has an open character so that all interested actors (organisations, citizens, companies...) can participate. As a germ, the Biowaste Club will be used, which will be developed within the framework of the European project HOOP.

Role: the main role of this body is to monitor and propose through the exchange of ideas and experiences.

Functioning: will meet as often as necessary via videoconference and on regular basis through the participation channels established by the Murcia City Council (e.g. through the circular suggestion box), and in person at least once a year.

Technical Committee

Composition: General Secretariat (chaired by the MCES coordinator) and technical managers, at least, of the Councillorships in charge of carrying out the actions. As far as possible, and in parallel, the opinion of already established working groups will be taken into account, whose agendas will include circular economy issues when necessary.

Role: This is the committee in charge of coordinating the plan, monitoring compliance with the measures, preparing follow-up reports on the plan (at least once a year) and partial evaluations, proposing new measures and acting as an intermediary between departments. As proposed, the City Council will appoint a coordinator, whose main function will be to ensure that the MCES is implemented effectively and that the proposed objectives are achieved.

Functioning: continuous work with at least two or three meetings a year convened by the General Secretariat.

Steering Committee

Composition: This Committee, led by the Chairperson, will be composed of and directed by municipal representatives at the highest political level.

Role: is the Committee in charge of approving what the Technical Committee prepares.

Functioning: at least one meeting per year convened by the Chair of the Committee.

Advisory Committee

On an ad hoc basis, and if required, advice will be provided by external experts from the point of view of the progress and impact of the strategy, proposal of new measures, etc.



Table 4. Governance Model of the MCES

6.

CONCLU-
SIONS

Based on the previous Assessment study, this document defines the Circular Economy Strategy for the municipality of Murcia through the proposal of an Action Plan and the corresponding Monitoring Plan to ensure compliance with the objectives set.

Specifically, a total of 30 actions are proposed to develop the 22 priority lines identified during the Assessment process for the 6 focus areas under study. Each action has been structured and defined according to the necessity, scope, experience and benefits that it entails; including the timeline for implementation, indicators of success and monitoring, the municipal service responsible for its implementation, the target audience and external collaborators.

The proposed actions will be developed in the 2021-2025 timeframe. After this time, the degree of compliance will be assessed and a new Action Plan will be proposed that will include revised and new actions in accordance with the Monitoring Plan. In this way, the proposed roadmap lays the foundations to ensure compliance with the proposed 2030 targets and to guide the municipality strategically in its transition to a circular economy.

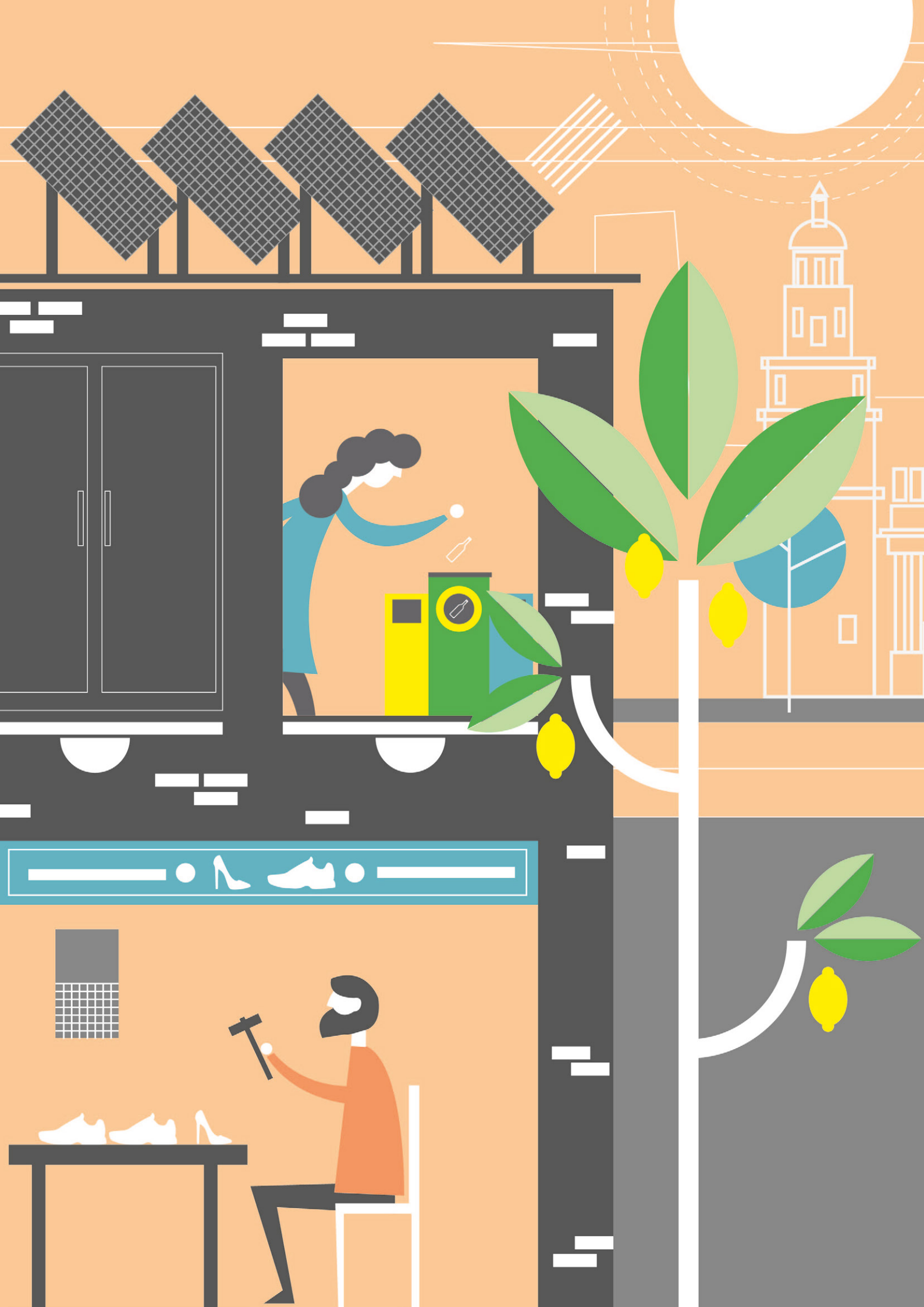
The Monitoring Plan constitutes the “how to” carry out the objectives set. However, for a correct implementation it is key to know “who” is going to carry it out. To answer this question, this document proposes an innovative governance system, which defines the roles of the actors in charge of carrying out this process (City Council, companies, entities and citizens) as well as the way in which these actors relate and collaborate for the effective implementation of the MCES. According to the governance model, the City Council will be in charge of leading the strategy with the collaboration of the rest of the actors through the creation of a series of bodies and committees: Open Body, Technical Committee, Steering Committee and Advisory Committee.

The publication of this document is the culmination of two years of intense work, which has involved an important process of public participation, both in the first phase of the Assessment and in the second phase in which the Action Plan has been defined. This participation was channelled through thematic roundtables with the main actors, personalised interviews and public surveys. The results obtained have been carefully analysed and considered in the drafting of this Strategy. The process can be defined as one of co-creation, as it has been carried out before, during and after the drafting process, ta-

king into account every citizen's opinion.

Ultimately, the MCES is a document that focuses on the present by looking at the future, and that takes into account what has been done in the past. Our aim is to build a modern and circular Murcia, which is also self-sufficient and resilient, prepared for the challenges of an increasingly unpredictable and changing future. LET US MOVE FORWARD TOGETHER TOWARDS CIRCULARITY.

“The publication of this document is the culmination of two years of intense work, which has involved an important process of public participation (...)”





7.

**REFEREN-
CES**

Ayto.Murcia. (2018).

Estrategia de Mitigación del Cambio Climático del municipio de Murcia 2030. http://www.murcia.es/medio-ambiente/medio-ambiente/material/estrategia_cambio_climatico/Estrategia%20Mitigaci%C3%B3n%20definitivo.pdf

Ayto.Murcia. (2020).

Diagnóstico del Estado de la Economía Circular en el Municipio de Murcia. Documento de síntesis. <https://www.estrategiamurcia.es/upload/2020/09/Diagnostico-del-estado.pdf>

Ayto.Zaragoza. (2021).

Ordenanza Municipal para la Ecoeficiencia y la Calidad de la Gestión Integral del Agua. Normativa. Ayuntamiento de Zaragoza. <https://www.zaragoza.es/sede/servicio/normativa/1542>

CARM. (2019).

Publicación número 1613 del BORM número 66 de 21/03/2019 sobre prácticas de quemas en el sector agrícola. <http://www.carm.es/web/pagina?IDCONTENIDO=1461&IDTIPO=100&RAST>

Ellen MacArthur Foundation. (2019).

Circular economy in cities: project guide. https://www.ellenmacarthurfoundation.org/assets/downloads/CE-in-Cities-Project-Guide_Mar19.pdf

European Commission. (2013).

Comunicación de la Comisión al parlamento europeo, al consejo, al comité económico y social europeo y al Comité de las Regiones. Infraestructura verde: mejora del capital natural de Europa. http://ec.europa.eu/environment/nature/ecosystems/docs/Green_Infrastructure.pdf

European Commission. (2018a).

Directiva (UE) 2018/ del Parlamento Europeo y del Consejo, de 30 de mayo de 2018, por la que se modifica la Directiva 94/62/CE relativa a los envases y residuos de envases. <https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32018L0852&from=ES>

European Commission. (2018b).

Directiva (UE) 2018/851 del Parlamento Europeo y del Consejo, de 30 de mayo de 2018, por la que se modifica la Directiva 2008/98/CE sobre los residuos. <https://www.boe.es/doue/2018/150/L00109-00140.pdf>

European Commission. (2019).

El Pacto Verde Europeo. https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-7c22-11ea-8c7f-01aa75ed71a1.0004.02/DOC_1&format=PDF

European Commission. (2020a).

Farm to Fork Strategy. https://ec.europa.eu/food/system/files/2020-05/f2f_action-plan_2020_strategy-info_en.pdf

European Commission. (2020b).

Nuevo Plan de acción para la economía circular por una Europa más limpia y más competitiva. <https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>

European Commission. (2020c).

REGLAMENTO (UE) 2020/741 DEL PARLAMENTO EUROPEO Y DEL CONSEJO de 25 de mayo de 2020 relativo a los requisitos mínimos para la reutilización del agua.

European Commission. (2021a).

Construction and demolition waste. https://ec.europa.eu/environment/topics/waste-and-recycling/construction-and-demolition-waste_en

European Commission. (2021b).

Fit for 55 | Legislative train schedule | European Parliament. <https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/package-fit-for-55>

Eurostat. (2021a).

Computer and personal and household goods repair statistics - NACE Rev. 2 - Statistics Explained. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Computer_and_personal_and_household_goods_repair_statistics_-_NACE_Rev_2#Sectoral_analysis

Eurostat. (2021b).

Statistics Recycling rate of municipal waste 2019. https://ec.europa.eu/eurostat/databrowser/view/t2020_rt120/default/table?lang=en

FEMP. (2019).

Estrategia Local de Economía Circular. Hacia una Estrategia Local de Desarrollo Sostenible. www.femp.eswww.municipiosyeconomiacircular.org

Gobierno de España. (2020).

Estrategia Española de Economía Circular. ESPAÑA CIRCULAR 2030. https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/economia-circular/espanacircular2030_def1_tcm30-509532.PDF

Gobierno de España. (2021).

Estrategia Nacional de Infraestructura Verde y de la Conectividad y Restauración Ecológicas. https://www.miteco.gob.es/es/biodiversidad/temas/ecosistemas-y-conectividad/infraestructura-verde/Infr_verde.aspx

IHOBE. (2019).

Diagnóstico de la reparación en la CAPV. www.ingurumena.eus

Jefatura de Estado. (2011).

Ley 2/2011, de 4 de marzo, de Economía Sostenible. <https://www.boe.es/buscar/pdf/2011/BOE-A-2011-4117-consolidado.pdf>

Jefatura del Estado. (2021).

Ley 7/2021, de 20 de mayo, de cambio climático y transición energética. <https://www.boe.es/boe/dias/2021/05/21/pdfs/BOE-A-2021-8447.pdf>

MAPA. (2021).

Desperdicio de alimentos de los hogares en España. Año 2020 vs 2019. https://gastronomiaycia.republica.com/wp-content/uploads/2021/06/1desperdicio_alimentario_hogares_2020vs2019.pdf

Mbow, C., et al. (2019)

Chapter 5. Food Security. In: *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*. https://www.ipcc.ch/site/assets/uploads/sites/4/2021/02/08_Chapter-5_3.pdf

Ministerio de Fomento. (2015).

Real Decreto Legislativo 7/2015, de 30 de octubre, por el que se aprueba el texto refundido de la Ley de Suelo y Rehabilitación Urbana. <https://www.boe.es/buscar/pdf/2015/BOE-A-2015-11723-consolidado.pdf>

MITECO. (2009).

Estrategia Española de Movilidad Sostenible. https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/participacion-publica/290409_eems_definitiva_tcm30-184109.pdf

MITECO. (2019).

Real Decreto 244/2019, de 5 de abril, por el que se regulan las condiciones administrativas, técnicas y económicas del autoconsumo de energía eléctrica. <https://www.boe.es/buscar/doc.php?id=BOE-A-2019-5089>

MITECO. (2020a).

Borrador del Anteproyecto Ley De Residuos Y Suelos Contaminados. https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/participacion-publica/200602aplresiduosysc_informacionpublica_tcm30-509526.pdf

MITECO. (2020b).

Plan Nacional Integrado de Energía y Clima 2021-2030. https://www.miteco.gob.es/images/es/pnieccompleto_tcm30-508410.pdf

MITECO. (2021).

I Plan de acción de economía circular 2021-2023. Estrategia Española de Economía Circular. https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/economia-circular/plan_accion_economia_circular_tcm30-529618.pdf

MITMA. (2020).

Conoce la Estrategia y sus ejes | Estrategia de Movilidad Segura, Sostenible y Conectada 2030. <https://esmovilidad.mitma.es/ejes-estrategicos>

MMA. (2011).

Estrategia Española de Sostenibilidad Urbana y Local (EESUL). <https://www.fomento.gob.es/NR/rdonlyres/1668CD1E-0B11-4C9E-84E2-E664D-D3464C1/111503/EESULWEB2011.pdf>

MODAlogia. (2021).

Colectivo MODAlogía. <http://colectivo-modalogia.blogspot.com/>

Moreno, C., Allam, Z., Chabaud, D., Gall, C., & Pratlong, F. (2021).

Introducing the “15-Minute City”: Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities. *Smart Cities 2021*, Vol. 4, Pages 93-111, 4(1), 93-111. <https://doi.org/10.3390/SMARTCITIES4010006>

MPR. (2019).

BOE.es - BOE-A-2019-1394 Orden PCI/86/2019. *lan de Contratación Pública Ecológica de la Administración General del Estado, sus organismos autónomos y las entidades gestoras de la Seguridad Social (2018-2025)*. https://www.boe.es/diario_boe/txt.php?id=BOE-A-2019-1394

Murciaenbici. (2021).

Taller autogestionado | Murcia en bici. <http://murciaenbici.org/?cat=10>

OECD. (2020).

The Circular Economy in Cities and Regions: Synthesis Report, OECD Urban Studies, OECD Publishing, Paris, <https://doi.org/10.1787/10a-c6ae4-en>. OECD. <https://doi.org/10.1787/10a-c6ae4-en>

Oficina de l'Energia de València. (2021).

Comunidades Energéticas - Canvi Climàtic. <https://canviclimatic.org/es/oficina-de-l-energia/comunidades-energeticas/>

Toogoodtogo. (2021).

Declárale la guerra al desperdicio de alimentos | Too Good To Go. <https://toogoodtogo.es>

Traperos Emaús. (2021).

TARJETA VERDE TRAPEROS | Boletín de Traperos de Emaús de la Región de Murcia. <https://emausmurcia.wordpress.com/tarjeta-verde-traperos/>

UN. (2021).

Sustainable consumption and production – United Nations Sustainable Development. Goal 12. <https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>

WARMUP. (2021).

Be Sostenible - WARM UP Estrella de Levante. <https://www.warmupfestival.es/be-sostenible/>

WaterEurope. (2016).

Water Europe, Water Europe Strategic Innovation and Research Agenda (Water Europe SIRA) 2030, Brussels.

Last access to links 15th November 2021.



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**ANNEX I.
SUMMARY
OF THE
PROPOSED
ACTIONS**

PRIORITY LINE	ACTION	COUNCILLORSHIP IN CHARGE	COLLABORATIONS	TARGET AUDIENCE	MONITORING AND EVALUATION INDICATORS	TIMELINE	ESTIMATED BUDGET
FOCUS AREA: CONSUMPTION							
C1.1	Campaign to encourage responsible and proximity consumption	-Councillorship for Employment, Commerce and Markets	-Mercamurcia (Agriculture Logistics Distribution Centre) -Councillorship for Urbanism and Ecological Transition	-Commerce -Citizens	-Number of municipal tenders and contracts incorporated to responsible and proximity consumption criteria -Number of private initiatives created about responsible consumption and proximity commerce	2021-2025	50000
C1.2	Introduction of circular and sustainable guidelines for events and celebrations	-Councillorship for Culture, Tourism and Sports -Councillorship for European Programmes, Municipal Initiatives and Public Road	-Councillorship for Urbanism and Ecological Transition -CESPA (Waste Management and Treatment Company) -"Peñas Huertanas" (sociocultural associations for the preservation of Murcian culture), Confraternities etc.	-Event sponsors and managers -Citizens	-Number of sustainable initiatives proposed and developed at events/festivities -Amount of avoided waste	2021-2025	15000
C2.1	Redesigning the city with its surroundings	-Councillorship for Employment, Commerce and Markets -Councillorship for Infrastructures, Procuring and Development	-Entities specialised in eco-design -Entities specialised in circular business models training	-Entrepreneurs -Citizens	-Number of entrepreneurs trained in circular models -Number of circular businesses created	2021-2025	60000
C3.1	Minimising food waste	-Councillorship for Employment, Commerce and Markets -Councillorship for Infrastructures, Procuring and Development	-Non-profit entities with food banks	-Citizens	-Amount of recovered and served food (tons/year) -Number of private initiatives created -Number of initiatives developed by non-profit organisations.	2021-2025	120000
C4.1	Encouraging reuse and repair	-Councillorship for Sustainable Mobility and Road Cleaning	-Neighbours associations -Consumer associations -Non-profit associations	-Citizens	-Number of initiatives inscribed in the registry of entities for reuse/repair -Number of available spaces to lengthen product lifespan	2021-2025	120000

PRIORITY LINE	ACTION	COUNCILLORSHIP IN CHARGE	COLLABORATIONS	TARGET AUDIENCE	MONITORING AND EVALUATION INDICATORS	TIMELINE	ESTIMATED BUDGET
FOCUS AREA: WASTE MANAGEMENT							
R1.1	Organic waste selective collection (bio-waste)	-Councillorship for Sustainable Mobility and Road Cleaning	-CESPA (Waste Management and Treatment Company)	-Citizens -Sector HORECA -Market squares	-Amount of the bio-waste selectively collected (tons/year) -Quality of the collected bio-wasteo (% improper materials) -Percentage of urban bio-waste recovery	2021-2023	5M€/year
R1.2	Measures to reach the objectives of preparing for re-using and recycling the municipal fractions	-Councillorship for Sustainable Mobility and Road Cleaning	-CESPA (Waste Management and Treatment Company) -ECOEMBES (Organisation for Recycling and eco-design)	-Citizens -Shops (small shops and department stores)	-MSW generation from minor construction work (tons/inhabitant/year) -Preparation for re-use and recycling of packaging, glass, paper and cardboard, textiles, WEEE, and household waste fractions (%/fraction)	2021-2024	0.5M€/year
R2.1	Activities to promote the correct management and assessment of the construction and demolition waste (CDW)	-Councillorship for Sustainable Mobility and Road Cleaning	-CESPA (Waste Management and Treatment Company)	-Citizens -SMEs from construction industry	-Quantity of CDW deposited in authorised dumps (tons/year) -Number of tenders where criteria for the separation and recovery of CDW are included	2021-2025	200000
R3.1	Circular Economy Fair	-Councillorship for Sustainable Mobility and Road Cleaning	-CESPA (Waste Management and Treatment Company) -Environmental associations -Neighbours and consumer associations	-Citizens -Shops -Other public entities	-Number of entities that participate in the events programmed -Number of attendees	2021-2025	50000

PRIORITY LINE	ACTION	COUNCILLORSHIP IN CHARGE	COLLABORATIONS	TARGET AUDIENCE	MONITORING AND EVALUATION INDICATORS	TIMELINE	ESTIMATED BUDGET
FOCUS AREA: WATER MANAGEMENT							
A1.1	Promoting the sustainable management of rainwater drainages	-Councillorship for Infrastructures, Procuring and Development	-Councillorship for Urbanism and Ecological Transition -Councillorship for Sustainable Mobility and Road Cleaning -EMUASA (Murcia's municipal water and sewer system company) -Parks and gardens concessionaire	-Citizens -Public infrastructures	-Number of buildings and spaces that integrate a sustainable management of storm drainage -Amount of water collected and reused (m ³ /year) -Number of sustainable urban drainage systems installed	2021-2025	1000000
A2.2	Reusing water from different sources and for different uses	-Councillorship for Infrastructures, Procuring and Development	-Councillorship for Urbanism and Ecological Transition -Councillorship for Sustainable Mobility and Road Cleaning -EMUASA (Murcia's municipal water and sewer system company) -Parks and gardens concessionaire	-Citizens	-Quantity of water reclaimed and reused (m ³ /year)	2021-2030	1000000
A3.3	Water and energy efficiency and the ICT	-Councillorship for Infrastructures, Procuring and Development	-Councillorship for Urbanism and Ecological Transition -Councillorship for Sustainable Mobility and Road Cleaning -EMUASA (Murcia's municipal water and sewer system company) -Parks and gardens concessionaire	-Citizens -Urban developers -Companies in the technology sector	-Water consumption in households and public spaces (m ³ /year) -Number of sustainable hydric systems implemented	2021-2025	10000

PRIORITY LINE	ACTION	COUNCILLORSHIP IN CHARGE	COLLABORATIONS	TARGET AUDIENCE	MONITORING AND EVALUATION INDICATORS	TIMELINE	ESTIMATED BUDGET
FOCUS AREA: SUSTAINABILITY OF URBAN SPACES							
E1.1	Creation of "solar neighbourhoods"	-Councillorship for Urbanism and Ecological Transition	-Neighbourhood communities -Energy cooperatives	-Neighbourhood communities -Small businesses	-Number of buildings with panels installed -Power installed in communities -Number of adhered users	2021-2025	1000000
E1.2	Local plan for the development and implementation of renewable energies	-Councillorship for Urbanism and Ecological Transition	-Councillorship for Infrastructures, Procurement and Development	-Citizens -Neighbourhood communities -Renewable energy companies	-Number of self-consumption installations (public and private) -Number of panels installed in public buildings -Number of refurbished/renovated panels in public buildings -Power installed of renewable energies	2021-2025	425000
E2.1	Inventory of degraded areas and recovery proposal from a point of view of interconnectivity	-Councillorship for Urbanism and Ecological Transition	-Seed and land banks -University of Murcia -Neighbours and environmental associations -Police -Local government councils	-Citizens and associations	-Number of degraded zones identified -Number of initiatives on identified zones -Surface area on which actions have been carried out	2021-2025	30000
E2.2	Sustainable pruning and crop residue management plan	-Councillorship for Urbanism and Ecological Transition	-Parks and gardens concessionaire -MSW management concessionaire -ASAJA (Agrarian association) - "Huertanos" (small-holding farmers) -Neighbourhood meetings	- "Huertanos" (smallholding farmers) (farmers) -Citizens	-Amount of pruning and crop residue collected -Number of operational/working composters -Amount of compost produced (community and plant composting)	2021-2025	500000
E2.3	Development of a set of sustainable guidelines for parks and gardens	-Councillorship for Urbanism and Ecological Transition	-Parks and gardens concessionaire -Environmental associations	-Entities in charge of the development, maintenance and/or management of green spaces -Citizens	-% of autochthonous species in parks and gardens -Amount of supplies (water, fertilizers, chemical products) used in parks and gardens -Soil quality parameters in parks and gardens (e.g. %MO, ClC, texture, water retention, etc.)	2021-2025	15000
E2.4	Elaboration of the Green and Blue Infrastructure Strategy	-Councillorship for Urbanism and Ecological Transition	-Parks and gardens concessionaire -Environmental associations	-Entities in charge of the development, maintenance and/or management of green spaces -Citizens	-Number of actions aimed at the interconnection of green spaces -Number of green space users	2021-2025	50000
E3.1	15-minute neighbourhood/district pilot	-Councillorship for Districts and Neighbourhoods, Human Resources and Urban Development	-Councillorship for Sustainable Mobility and Road Cleaning -Local government councils -Traders', sports, cultural associations	-Citizens -Shops from the selected pilot zones	-Transport use distribution in pilot zones -Number of downloads of the created guidelines -Number of establishments involved	2021-2025	15000

PRIORITY LINE	ACTION	COUNCILLORSHIP IN CHARGE	COLLABORATIONS	TARGET AUDIENCE	MONITORING AND EVALUATION INDICATORS	TIMELINE	ESTIMATED BUDGET
FOCUS AREA: MOBILITY							
M1.1	Local vehicle-sharing platform	-Councillorship for Sustainable Mobility and Road Cleaning	-Councillorship for Health and Digital Transformation -Sustainable mobility associations	-Citizens -Digital companies	-Number of platform users -Number of routes offered and requested	2021-2025	15000
M1.2	Package of measures to promote the acquisition and use of sustainable vehicles	-Councillorship for Sustainable Mobility and Road Cleaning	-Councillorship for European Programmes, Municipal Initiatives and Public Road. -Councillorship for Urbanism and Ecological Transition	-Commerce -Citizens	-Number of sustainable vehicles incorporated to the system -Number of sustainable vehicle users -Modal sharing of means of transport	2021-2025	300000
M2.1	Establishment of low-emission zones	-Councillorship for Sustainable Mobility and Road Cleaning	-Councillorship for Infrastructures, Procuring and Development -Sustainable mobility associations -Research groups from universities	-Citizens from the neighbourhoods/districts chosen	-Number of low-emissions zones established -Air quality of the selected areas	2021-2025	50000
M2.2	Maximisation of the use of new technologies for a sustainable mobility	-Councillorship for Sustainable Mobility and Road Cleaning	-Councillorship for European Programmes, Municipal Initiatives and Public Road.	-Citizens -Traffic management service	-Number of actions in which the proposed tools have been used -Number of projects in the field of "Smart Cities" in which the city council is involved	2021-2025	30000

PRIORITY LINE	ACTION	COUNCILLORSHIP IN CHARGE	COLLABORATIONS	TARGET AUDIENCE	MONITORING AND EVALUATION INDICATORS	TIMELINE	ESTIMATED BUDGET
FOCUS AREA: CROSS-CUTTING POLICIES							
P1.1	Coordinating/aligning Strategies/Plans/initiatives	-Councillorship for Health and Digital Transformation	-Councillorship for Sustainable Mobility and Road Cleaning -Design associations -Circular Initiatives Managers	-Citizens -CE initiatives managers	-Number of circular economy enterprises/initiatives hosted -Number of visits -Number of service/materials/services offered and acquired/contracted	2021-2025	30.000
P2.1	Capitalising circular actions as examples of good practices	-Councillorship for European Programmes, Municipal Initiatives and Public Road.	-Leader enterprises in Circular Economy -Development Institute of the Region of Murcia -Circular economy business accelerators	-Small-sized companies and innovative and disruptive start-ups -Citizens	-Number of attendees to the activities -Number of enterprises hosted -Number of challenges proposed -Number of activities developed	2021-2025	100.000
P3.1	Developing effective, current and continuous public participation strategies	-Councillorship for Education, Urban Agenda and Open Government	-Procuring and services with participation campaigns	-All the stakeholders (multiactor approach)	-Number of participants -Number of mails, requests and questions received -Number of surveys/participatory processes planned	2021-2025	15.000
P4.1	Developing training and/or awareness-raising activities	-Councillorship for Education, Urban Agenda and Open Government	-Procuring and services with awareness-raising campaigns	-All the stakeholders (multiactor approach)	-Number of campaigns carried out -Number of people reached by the campaigns -Degree of acceptance/consumption of circular products and participation in CE initiatives	2021-2025	40.000
P5.1	Developing municipal funding calls to boost circular economy projects	-Councillorship for European Programmes, Municipal Initiatives and Public Road.	-Councillorship for Economic Management and Security Regional government -Entities developing funding calls for Circular Economy	-Stakeholders interested in developing projects in Circular Economy	-Number of funding calls identified -Number of municipal funding calls that envisage circular economy projects -Number of applications received for municipal funding calls	2021-2025	3.000

PRIORITY LINE	ACTION	COUNCILLORSHIP IN CHARGE	COLLABORATIONS	TARGET AUDIENCE	MONITORING AND EVALUATION INDICATORS	TIMELINE	ESTIMATED BUDGET
FOCUS AREA: CROSS- CUTTING POLICIES							
P6.1	Promoting Sustainable and Innovative Public Procurement	Development of the Municipal Sustainable Public Procurement Manual	-Procurement services	-Stakeholders interested in participating in Sustainable Procurement processes	-% Circular goods/ services purchased/ contracted by the City Council -Number of Sustainable Public Procurement processes with circular criteria -Number of SMEs that have participated in Sustainable Public Procurement processes	2021-2025	6000
P7.1	Improving the access to information and monitoring	Measures to improve the access to information, information use and availability	-Research groups from universities	-Citizens -Entities	-Number of consultations -Number of complaints on access to information -Number of applications positively resolved -Number of new indicators included	2021-2025	6000



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