

CASE STUDY

Murcia (Spain) –
Albuquerque (USA)

IURC - NA

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Thematic Network(s): Circular Economy

Topic keywords: *circular economy, organics management, community composting, school composting, biowaste, waste reduction*

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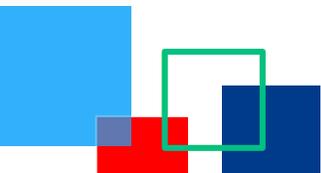
IURC – CASE STUDY

The cities of Albuquerque, USA, and Murcia, Spain, are both committed to advancing circular economy (CE) practices in their community. Waste measurement, innovative organics management approaches, and education solutions, including the engagement of local organizations, are cornerstones of their approach. Through the IURC cooperation, they exchanged tools that can serve as models and committed to continue working together to advance their respective community priorities.

EXECUTIVE SUMMARY

Both Murcia (Spain) and Albuquerque (USA) boast similar-sized populations (~ 500,000) and climate characteristics. While Albuquerque is a hub for technology, fine arts, and media companies, Murcia's economy is strongly influenced by its agricultural traditions, referred to as the "Orchard of Europe". Both cities have enthusiastic governments with supportive leadership that share comparable challenges in managing diverse waste streams. Murcia embraced its role in driving the transition to a circular economy and adopted a comprehensive Circular Economy Strategy in 2021 with six priority areas that integrate their values, affirming that one must "Look back at our traditions to look at the future". Albuquerque established the Sustainability Office in 2019 and released the community-driven 2021 Climate Action Plan, which includes 10 goals related to food systems, including food waste reduction.

Despite differing contexts (environmental, social, and resource-related) and policy approaches, the cities acknowledged their similar challenges relating to waste diversion. Through study visits, video conferences, and discussions, the 18-month cooperation between the two cities explored policies, data tracking, and a variety of pilot programs addressing organic waste diversion and management. The cooperation helped Albuquerque take a broader view of how to tackle waste diversion and integrate its waste objectives into city systems, while Murcia gained ideas and practical resources to undertake composting pilots in the community and advance food waste reduction initiatives in schools.



CHALLENGES AND SOLUTIONS

Waste management is both a public service and a business. Cities' responsibilities in waste management have evolved into a multi-pronged role, as they are expected to drive efforts to reduce waste, educate citizens and businesses, create incentives for new behaviours, understand markets and local business opportunities, choose systems that will meet various city objectives, and oversee relevant infrastructure investments. While Albuquerque and Murcia have followed different paths, both reveal common global challenges—**limited financial resources, infrastructure constraints, and the need for sustained citizen engagement**. Public education and community participation are central to solutions in both contexts.

In **Albuquerque**, low landfilling costs and limited financial resources hinder the implementation of expansive waste reduction programs. An estimated 112,000 tons of food is wasted annually, representing not only a cost for the city but also an opportunity to address food insecurity through prevention and rescue programs. Household savings from waste prevention could be significant, up to \$728 per capita per year. While they recognize the need for a multi-faceted approach, they are building their foundation for organic waste management using pilot projects and public education and engagement.

Their starting point is educational facilities and Community Composting Co-op Sites. They aim to increase opportunities to help educational facilities (schools and universities) divert organics and teach the next generation about its benefits (sharing resources and technical assistance). The new policy resource focused on supporting community scale composting is providing a necessary direction for these efforts, and the city is leveraging existing resources, such as a community composting best practices guide developed in a wetter climate (the eastern US), to orient their community engagement and coordination approach.

While **Murcia** benefits from momentum emerging from an ambitious circular economy framework¹ and external financing sources (NextGeneration-EU funding program), its diverse waste reduction initiatives revealed similar challenges encountered by Albuquerque with respect to engaging sectors of the economy, citizens, and other organisations in waste reduction practices. It introduced the collection of organic waste through the installation of dedicated brown containers in various neighbourhoods. The collected organic waste is processed at large-scale facilities such as the **VALUEWASTE pilot plant**, where it is transformed into biogas, compost, and other bio-based products (protein and fatty acids for livestock). In 2025, Murcia is working to complete the deployment of organic waste containers across the entire city in line with their biowaste collection goal of 60% in their Circular Economy Action Plan accompanied by a communication campaign to promote participation.

Through the GreenMe5 project funded by LIFE PROGRAMME EU, Murcia is also targeting public schools as key intervention points. The project will also explore potential avenues for repurposing surplus food, including its redistribution or transformation for alternative uses. Composting in public urban gardens or within the schools themselves will be explored as outlets for unavoidable food waste, fostering a circular approach and supporting local urban agriculture.

¹ <https://www.estrategiamurcia.es/upload/2021/11/Murcia-s-Circular-Economy-Strategy.pdf>
<https://iclei-europe.org/member-in-the-spotlight/murcia>



Taken together, Albuquerque and Murcia illustrate shared barriers faced by cities worldwide: financial constraints, the need to expand infrastructure, fragmented participation, and behavioural challenges at the household level. Albuquerque's community-based composting and school initiatives are in contrast with Murcia's large-scale, EU-backed infrastructure, highlighting different pathways, both of which require local engagement and participation. Both cities demonstrate the importance of coordinated policies, public education, and innovative solutions supporting environmental, social, and economic goals.

Murcia also highlights specific organics collection challenges at the household level ([HOOP Project report](#)):

- Limited space at home: Smaller households struggle to accommodate multiple bins.
- Lack of information: Clear instructions and better labelling are needed for proper separation.
- Distrust: Nearly 16% of residents are sceptical that separated waste is treated correctly.
- Systemic issues: The prevalence of single use packaging complicates separation.
- Motivational barriers: While environmental concerns exist, some residents are not sufficiently motivated due to logistical difficulties or unclear benefits.

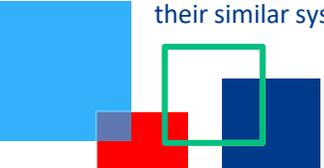
RESULTS AND IMPACT

The collaboration between Murcia and Albuquerque has not only supported the advancement of ongoing initiatives but also created a shared learning space that is guiding the next generation of waste reduction initiatives. By focusing on schools, public facilities, and community composting models, both cities are demonstrating how international cooperation can help translate pilot projects into scalable solutions with tangible climate and social benefits.

In **Murcia**, a new initiative to fight food waste in schools was launched in July 2025. The programme will begin with an audit in six schools that reflect the city's diverse contexts and operational models. The exercise combines two dimensions: (1) a technical audit that traces food flows from procurement and daily menu planning to organic waste management, and (2) a behavioural analysis using citizen science methods to capture the practices of students, staff, and families. Inspired by **Albuquerque's Community Composting Co-op model** and results achieved at the **Barelas Senior Centre**, Murcia is assessing the potential to compost organic waste directly within schools or nearby community gardens. Since many of these gardens are managed by senior citizens, the exchange is reinforcing intergenerational collaboration while closing the organic waste loop locally.

Albuquerque also provided concrete tools to accelerate Murcia's school programme. Its partner, the **Ciudad Soil and Water Conservation District**, developed and shared an *Outline of How to Start a School-Wide Composting Initiative*, enriched with the **US EPA guide [Conducting Student Food Waste Audits](#)**. The City also shared its **Community Compost Operations Plan**, which details procedures for managing compost systems on public property while mitigating nuisances—a valuable operational reference for Murcia's pilots.

Knowledge exchange was reciprocal. Murcia's experience with materials recovery, including real-time data collection optimization and tracking, —provided Albuquerque with concrete examples of how integrated, real-time data can inform waste and circular economy programming. This exposure is now driving Albuquerque to explore opportunities for embedding waste metrics (e.g., tonnage of green waste diverted, number of audits, food waste recovered) into their similar system, the **Balanced Resource Acquisition and Information Network (B.R.A.I.N.)**—a platform currently



focused on energy efficiency that gathers all smart systems in the city and that has generated significant operational savings —unlocking greater efficiency and accountability.

Looking forward, Albuquerque has drafted a checklist of potential next steps that includes:

- Developing a **Rethinking Municipal Waste Roadmap** that aligns local action with regional and state climate action plans ([Resilient Futures](#), [New Mexico Climate Action Plan](#)) and paves the way for a Municipal Waste Guide.
- Piloting **lead-by-example initiatives** in municipal facilities, such as food rescue apps that provide real-time statistics and lay the groundwork for a Universal Recycling Ordinance.
- **Improving waste data systems**, working across departments to expand their B.R.A.I.N. platform to include waste-related data, and exploring funding mechanisms for systematic audits and reporting.
- **Reducing food waste in schools**, building on Murcia’s cafeteria-side data collection apps, and sharing lessons from Albuquerque’s own prevention and reporting pilots.

Together, Murcia and Albuquerque are charting a pathway where **data-driven systems**, **community composting models**, and **education-led initiatives** reinforce each other. Their cooperation highlights a broader lesson: tackling food and organic waste requires not only technical solutions, but also cultural change, citizen engagement, and governance tools that cut across silos. By combining European circular economy strategies with U.S. community-driven innovation, the two cities are shaping a transatlantic model for waste reduction and climate action.

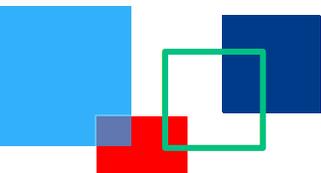
KEY FIGURES

1,800 tons

were processed in Murcia’s VALUEWASTE pilot plant, to generate bio-based products (feed the black soldier fly larvae to obtain animal protein and struvite for the fields).

112,000 tons

of food is wasted each year in Albuquerque. 3 pilots started the process to recover the organic waste through community composting, drop-off site collection, and restaurant and concessions collection.



LESSONS LEARNED

The cooperation between Murcia and Albuquerque highlighted how different contexts can converge around shared goals for reducing and managing organic waste and advancing circular economy practices. Despite following distinct pathways—one driven by large-scale EU frameworks and the other by community pilots and school composting programs—the exchange demonstrated the value of sharing technical resources, practical experiences, and cultural approaches.

Data drives effective action.

Real-time data integration can inform waste programs, enhance coordination across city departments, and generate operational savings. Murcia's exemplified how waste data collection can help optimize and increase materials recovery and inspire Albuquerque to strengthen its own data platform, the Balanced Resource Acquisition and Information Network (B.R.A.I.N.).

Cultural acceptance matters.

Solutions must be tailored to local behaviours and perceptions. Both cities recognized that cultural acceptance of waste sorting programs is critical to reduce contamination, prevent illegal dumping, and encourage sustained participation.

Technology expands possibilities.

Observing practical applications, from food waste valorisation pilots to treatment technologies for waste contamination, provide inspiration for future system improvements. Targeted pilots can build momentum for broader adoption.

Leveraging community participation.

Harnessing local assets—from neighbourhood pilots and senior centres to community gardens and schools—creates strong ownership and opens new opportunities for circular initiatives.

Single waste stream-focus.

Focusing limited resources on food waste prevention proves to be an effective way of delivering benefits across climate action (e.g., greenhouse gas reduction, financial savings, community engagement, etc.). Additionally, concentrating staff and funds on one waste stream helps mobilize municipal operations, residents, and businesses around a shared priority.

THE INTERNATIONAL URBAN AND REGIONAL COOPERATION PROGRAMME IN NORTH AMERICA

The International Urban and Regional Cooperation program in North America (IURC NA), funded by the European Union, partners European cities with Canadian and USA cities to facilitate knowledge exchange through online tools, face-to-face interactions, study visits, participation in thematic and networking events, and capacity-building initiatives. Its activities support the achievement of policy objectives as well as major international agreements on urban development and climate change, such as the EU Urban Agenda, the UN Sustainable Development Goals, and the Paris Agreement. The program is part of a long-term strategy by the European Union to foster sustainable urban development in cooperation with the public and private sectors, researchers, innovators, community groups, and citizens. IURC NA is financed under the EU Foreign Policy Instruments and benefits from the strategic support of the Directorate-General for Regional and Urban Policy of the European Commission.

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Links to related outputs:

[Albuquerque's Food and Agriculture Action Plan](#)

[Albuquerque's Climate Action Plan 2021](#)

[Albuquerque's Sustainability Resources](#)

[Murcia's Circular Economy Strategy](#)