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**"Orlando's Path to Zero Waste: Unlocking the Potential of Zero Waste Cities in Florida"**

According to a 2018 World Bank report, global annual municipal solid waste production is projected to increase from 2.01 billion tonnes in 2018 to 3.40 billion by 2050. Roughly 33% of this waste is poorly managed, leading to issues such as soil, water, and air contamination, a risk to human, animal, and marine health, and greenhouse gas emissions from landfills (Kumar et al., 2005; Kaur et al., 2018; Kaza, Yao, Bhada-Tata, and Woerdan, 2018).

Nations worldwide recognize the urgency of waste reduction, aligning with Sustainable Development Goal that emphasizes waste reduction by 2030 (Zaman and Lehmann, 2011; Pietzsch, Ribeiro, and Fleith de Mederios, 2017). However, a lack of specific, measurable targets hinders tracking waste reduction progress (Veleva et al., 2017). Orlando aspires to achieve ZW status by 2040. Using the Environmental Protection Agency's ZW planning tool (EPA, 2023), a city's potential and progress toward ZW can be assessed by examining current waste practices.

## Current Waste Management Scenario

Orlando has initiated several waste reduction efforts, including developing a Climate Action Plan, prohibiting single-use plastics in offices, and mandatory recycling for commercial and multi-family properties since April 2023. However, the city faces significant challenges, such as a lack of baseline data on waste generation, the absence of a materials recycling and recovery facility, and the need for a comprehensive ZW plan.

Orlando lacks precise waste characterization, but Orange County data shows plastic bottles (20%), paper (20%), other plastics (19%), and food (10%) dominating the waste stream, indicating over 70% waste diversion potential.

Additionally, Orlando generated approximately 197,563 tons of waste in 2022, with 179,068 tonnes landfilled, consisting of recyclables (metal, glass, paper, plastics, rubber, textiles) and organics (yard trimmings, wood, and food scraps). Utilizing the EPA's tool, recovering this

waste could yield an annual revenue of $11 million, in addition to creating jobs, mitigating health issues, and reducing landfill dependence.

## Recommendations

Using the EPA's ZW planning tool, several policy, program, and infrastructure recommendations can be proposed to advance Orlando's ZW goal.

### Policy

- Develop a comprehensive ZW plan, enhancing reuse, recycling, composting, and waste reduction with measurable targets.
- Set a ZW goal for organics to effectively divert food and organic waste from landfills.
- Mandate hauler reporting on garbage, recyclables, and compostables to establish accurate baseline data for tracking waste reduction.
- Implement a pay-as-you-throw policy to incentivize waste reduction through volume-based charging to initiate behavior change.

### Programs

- Initiating food pickup or donation programs, especially for commercial sites, to divert edible food from landfills.
- Implementing community-based social marketing programs to drive behavior change, particularly in the business sector.

### Infrastructure

- Establishing a Resource Recovery Facility to recover reusable and recyclable materials from the waste stream.
- Establishing a Reuse Center for the sale of used goods.
- Developing an in-city organic waste composting facility.

## Conclusion

Orlando has the potential to achieve its ZW goal by 2040 but needs to augment its current efforts by implementing a comprehensive ZW plan. Beyond economic benefits, this journey of Orlando promises environmental sustainability and community well-being, setting an example for Florida cities striving for sustainable waste management practices.

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