Interreg Europe

Co-funded by the European Union

INERTWASTE

Challenges and Implementation of Solutions for Inert Waste in the City Municipality of Maribor

Andraž Mlaker

City Municipality of Maribor
Head of the Office for Municipal Services, Transport and Spatial Planning
e: andraz.mlaker@maribor.si

Municipality of Maribor
University city of Maribor

May 20, 2025 | Nykøbing F., Denmark

Introduction

- **Project Impact**
  - Dedicated initiative aimed at optimizing the management of inert waste generated within the City Municipality of Maribor.
  - Update and upgrade of the Strategy for the Transition to Circular Economy in the Municipality of Maribor into the new **Strategy for the Transition of the City of Maribor to the Circular Economy 2024–2030**.
  - Actions in line with national and EU waste management policies, emphasizing sustainability and circular economy principles.
- **Importance of the Initiative**
  - Reducing environmental impact by minimizing landfill usage and promoting recycling.
  - Enhancing public health and urban aesthetics through proper waste management.
- **Presentation Objectives**
  - To discuss current challenges in managing inert waste in Maribor.
  - To propose concrete, actionable solutions for improved waste handling.
  - To outline a roadmap for implementing these solutions in the short, medium, and long-term.

Challenges in Managing Inert Waste in Maribor (1)

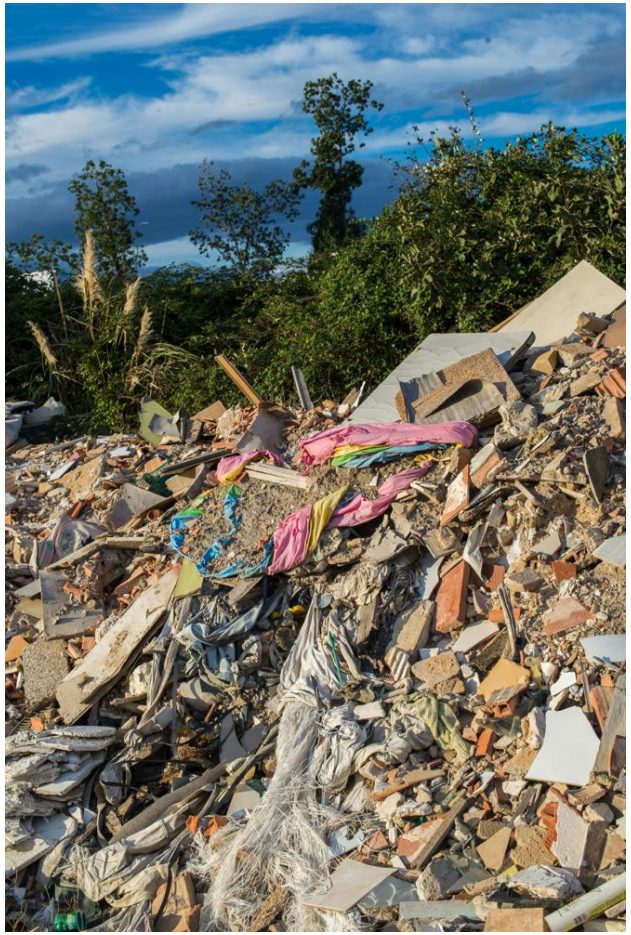
- **Legal and Regulatory Challenges**
  - **Compliance Issues:** Navigating complex national legislation and EU directives (e.g., the Waste Framework Directive and Landfill Directive) which sometimes result in ambiguous categorization and enforcement challenges.
  - **Inconsistent Regulations:** Differences in local versus national waste management policies can create loopholes that hinder effective waste processing.

- **Infrastructure Limitations**
  - **Insufficient Facilities:** Lack of dedicated sorting and recycling centres specifically designed to handle inert materials.
  - **Outdated Equipment:** Existing waste processing plants may not be equipped with the technology needed to efficiently recycle inert waste, limiting reuse opportunities.

GREEN

Challenges in Managing Inert Waste in Maribor (2)

- **Illegal Dumping and Unsanctioned Disposal**
  - **Prevalence of Unauthorized Sites:** Growing instances of illegal dumping in remote or under-monitored areas, leading to environmental degradation.
  - **Enforcement Difficulties:** Challenges in monitoring and regulating private construction sites, which sometimes bypass formal waste disposal channels.
- **Public Awareness and Engagement**
  - **Limited Knowledge:** Many citizens and even construction companies are not fully aware of proper disposal and recycling practices for inert waste.
  - **Insufficient Outreach:** Lack of targeted public campaigns to educate stakeholders on the benefits and methods of inert waste management.
- **Economic and Financial Barriers**
  - **Budget Constraints:** Limited municipal funds for upgrading waste management infrastructure and implementing advanced technologies.
  - **High Investment Costs:** The initial expense of setting up modern recycling facilities and digital tracking systems can be a deterrent.



Implementation of Solutions (1)

- **Enhanced Waste Collection and Sorting**
  - **Dedicated Collection Points:** Establish clearly marked collection sites specifically for inert waste at strategic locations around the city.
  - **Specialized Transport:** Invest in a fleet of vehicles designed for the safe and efficient transport of heavy inert materials.
- **Investment in Recycling Facilities**
  - **Modern Processing Plants:** Develop state-of-the-art recycling facilities capable of converting inert waste into high-quality aggregates for construction.
  - **Public-Private Partnerships:** Leverage collaborations with private companies to share costs and expertise in recycling technologies.
- **Technological Integration and Digital Tracking**
  - **IoT and GPS Solutions:** Implement sensor-based systems to track waste collection routes, monitor disposal sites, and provide real-time data on waste flows (*i.e. digital material passport*).
  - **Centralized Data Platforms:** Create an online dashboard for municipal authorities to monitor progress, identify bottlenecks, and optimize resource allocation.

1 Construction and demolition waste

SO 1. Systematic regulation of the circular handling of construction and demolition waste

OO 1. Establishment of a public service for the mandatory collection of waste with certain classification numbers arising from maintenance, renovation, construction work and public open spaces.
OO 2 . Organization of collection and recovery of waste and its reuse for the maintenance of public areas.

M 1. Extension of the Ordinance - maintenance of municipal traffic areas and compulsory waste collection.
M 2. Recycling of construction waste - increasing the use of raw materials for operations (Nigrad d.o.o.).
M 3. Preparation of documentation for the establishment of a center for material self-sufficiency with sustainable building materials.
M 4. Establishment of a center for material self-sufficiency with sustainable building materials.

Implementation of Solutions (2)

- **Strengthening Regulatory Frameworks**
  - **Policy Harmonization:** Work closely with national and EU bodies to streamline regulations and close existing loopholes.
  - **Strict Enforcement:** Introduce higher fines and tighter controls to deter illegal dumping and non-compliance with waste management standards.
- **Community Engagement and Educational Campaigns**
  - **Public Workshops and Seminars:** Organize events to educate residents, local businesses, and construction companies about proper inert waste management practices.
  - **Targeted Communication:** Use social media, local news outlets, and community centers to spread awareness and encourage participation in recycling initiatives.
- **Economic Incentives and Funding Opportunities**
  - **Tax Breaks and Subsidies:** Offer financial incentives to companies investing in recycling technologies or adopting best practices for inert waste management.
  - **Grants and Loans:** Secure funding from national and EU programs dedicated to environmental sustainability and waste management improvement.

2 Municipal waste

SO 2. Integration of all principles of the municipal waste management hierarchy

OO 3. Establishment of a system and centre for the treatment of separately collected bio-waste and the re-use of biomass to increase local bio-sufficiency.
OO 4. Prevention of waste generation by promoting and raising awareness of reuse and by increasing the separate collection of certain fractions of waste
OO 5. Sustainable management of municipal sludge from a central sewage treatment plant.

6 Organisation and digitalisation

SO 6. Real-time monitoring of construction waste and raw material flows to assess needs and available resources

OO 12. Institutionalization of circular economy activities of public stakeholders in the City Municipality of Maribor
OO 13. Fostering circular economy through green public procurement
OO 14. Establishment of digital tracking system for waste and raw material flows, equipped with qualified information on each flow.

Case Studies and Best Practices

- **Case Study: Vienna, Austria**
  - **Efficient Separation:** Vienna has implemented a highly organized system for sorting construction waste, significantly increasing recycling rates.
  - **Digital Monitoring:** Use of digital tracking systems has enhanced transparency and operational efficiency in waste management.
- **Case Study: Milan, Italy**
  - **Regulatory Success:** Stricter enforcement of waste disposal laws has resulted in a notable reduction in illegal dumping.
  - **Community Programs:** Active public engagement and educational programs have fostered community responsibility towards waste management.
- **Lessons Learned for Maribor**
  - **Adaptability:** Maribor can adapt similar strategies by tailoring them to its local context (*Strategy for the Transition of the City of Maribor to the Circular Economy 2024–2030*).
  - **Collaborative Approach:** Involving all stakeholders—including government, private sector, and citizens—ensures a holistic and sustainable solution.

Future Outlook and Goals (1)

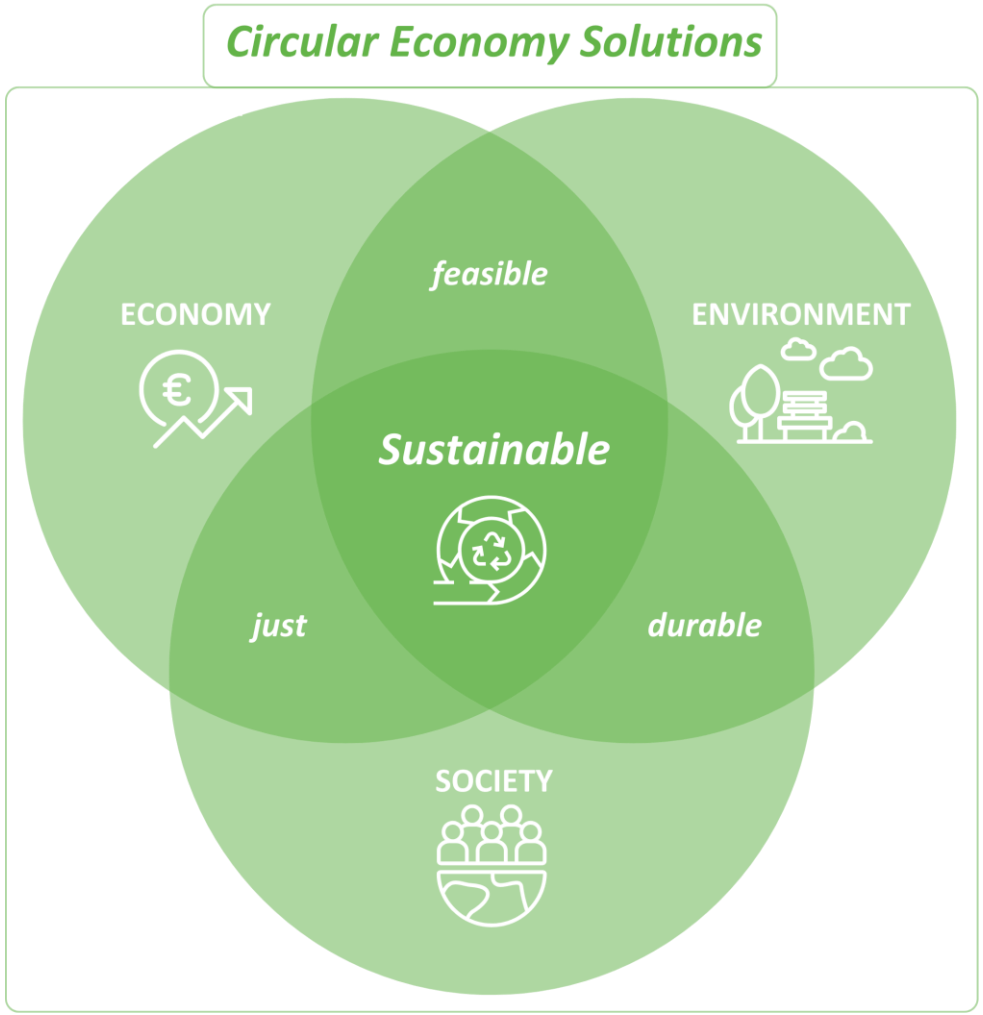
- **Key Performance Indicators (KPIs)**
  - **Recycling Rate:** Target to recycle at least 70–80% of inert waste rather than disposing it in landfills.
  - **Reduction in Illegal Dumping:** Aim for a measurable decrease in reported cases of illegal dumping through stricter enforcement and public reporting mechanisms.
  - **Increased Public Engagement:** Track participation in educational initiatives and community feedback as key success metrics.
- **Long-Term Vision for Maribor**
  - **Circular Economy Model:** Transition towards a sustainable, closed-loop system where inert waste is continuously recycled and reused in construction projects *(i.e. LIFE IP Restart project, public company Nigrad, „Obligatory deposition of vaste from public construction projects in Maribor“, presented at TLJ3 in Marseille and GP3 „Closing urban loops by increasing reuse of construction and demolition waste“)*.
  - **Environmental Impact:** Significant reduction in land use for landfills, improved urban aesthetics, and better conservation of natural resources.

Future Outlook and Goals (2)

- **Implementation Timeline and Milestones**
  - **Short-Term (1–2 Years):**
    - Establish pilot collection points and initiate public awareness campaigns.
    - Begin feasibility studies for new recycling facilities.
  - **Medium-Term (3–5 Years):**
    - Roll out full-scale digital tracking systems and build or upgrade recycling plants.
    - Strengthen regulatory measures with measurable improvements in waste diversion.
  - **Long-Term (5+ Years):**
    - Achieve full integration of the circular economy model.
    - Continuously monitor and adapt strategies based on performance data and stakeholder feedback.

Conclusions

- **Recap of Key Points**
  - The presentation has outlined the multifaceted challenges facing inert waste management in Maribor and proposed detailed, actionable solutions.
  - Emphasis on the integration of modern technology, regulatory reforms, and community involvement as the cornerstones for success.
- **Call to Action**
  - Stakeholders are encouraged to collaborate and commit to the proposed measures for a cleaner, more sustainable Maribor.
  - Ongoing engagement, transparent communication, and shared responsibility will be essential for achieving the project's goals.
- **Next Steps**
  - Schedule follow-up meetings to discuss pilot projects and secure necessary funding.
  - Launch targeted outreach programs and initiate the implementation phase with measurable targets.



Interreg Europe

Co-funded by the European Union

INERTWASTE

Thank you!

www.interregeurope.eu/INERTWASTE

Municipality of Maribor
University city of Maribor