PRESS RELEASE

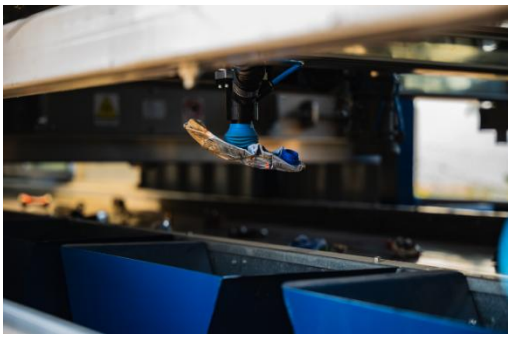
Kefalonia island's trash is piling up—blue-bin waste volumes have surged 78% in just 5 years. With tourist seasons straining local systems, transporting waste to centralised MRFs adds cost and emissions. RECLAIM's portable robotic Material Recovery Facility (prMRF) has been deployed in Kefalonia for automated sorting on-site, cutting roundtrip waste transfers and boosting material recovery rates.

Rotterdam, May 19 2025:

Kefalonia has no time to waste. Largest of all the Ionian islands in Western Greece and the sixth biggest in the country, Kefalonia is struggling to cope with its own trash. In the last five years, the island's blue-bin network collected 3,115 tonnes of waste **– a 78% increase since 2020** (1,749 t to 3,115 t). Yet, **38%** of this waste is **either improperly disposed** or doesn't belong there.

During **peak tourist seasons**, typically between May and September, the average monthly waste generation increases **by at least 60%** compared to the rest of the year, driven by **seasonal surges in tourist population**. Inadequate infrastructure, limited public awareness of effective waste management practices and resource constraints within waste management organisations contribute to low recycling rates, adding pressure on an overburdened system.

Kefalonia's waste management woes are unique, but they reflect broader issues faced by many remote areas in Europe with limited waste management infrastructure. To solve this issue, EU-funded RECLAIM has developed the **world's first fully automated**, **AI-powered**, low-cost portable robotic Material Recovery Facility (prMRF) for **local scale** material recovery to enhance recycling of municipal waste. The prMRF is designed for **quick deployment in remote areas** with fluctuating waste volumes, such as tourist-heavy island destinations, airports, shipping ports and venues hosting large-scale events. This will enable **close-to-source recovery of recyclables** and offer a **powerful decentralised approach** to waste management in Europe.



The RECLAIM Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No: 101070524

Looks can be deceptive, because inside this portable standard shipping container, an AI-powered material recovery facility is neatly embedded utilising advanced robotic waste management technology to efficiently and effectively sort recyclable municipal waste in challenging conditions.

In the sorting process, multiple **low-cost robots** with **modular grippers** efficiently pick and handle different types of waste, depending on their composition. In addition, **AI-driven computer vision**, **deep learning** and a combined effort of **visual** and **hyperspectral imaging** technologies are able to accurately identify, categorise and localise recyclable waste, allowing robots to maximise sorting effectiveness.

As a result, the prMRF can recover around **6,500 plus items per hour** of plastic packaging, metal packaging, and drinking carton (PMD) packages and save an estimated **1.6 tonnes of carbon emissions daily**. Compared to the prevalent urban-centric Material Recovery Facility (MRF) model, the prMRF is designed for flexible, localised waste recovery from smaller, remote areas. This decentralised approach consumes **36% less fuel** by reducing roundtrip transfer of residual waste to centralised MRFs, and **12% faster waste processing,** thanks to onsite sorting. RECLAIM's decentralised solution will improve recovery of valuable recyclable waste locally, benefiting the **Ionian islands** and the **European Union**.

Right now, the prMRF is in Kefalonia **(pictures above)** undertaking material recovery activities with real waste to test if it can work in challenging conditions. The deployment in Kefalonia - thanks to the Ionian Islands Waste Authority (ION) responsible for waste management in the island - is a significant step to accelerate material recovery operations across the region towards a more **circular European Union**.

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By decentralising material recovery, the prMRF **reduces transport emissions**, **increases recycling efficiency**, and supports a more **circular economy**.

The unique capabilities of RECLAIM's prMRF include:

- **Quick deployment:** Container is fully operational in less than 2 days.
- **Adaptability:** Adaptable digital systems and modular robotic teams can be reconfigured—often within 30 minutes—to handle various waste types based on local conditions.
- **Flexible operation:** prMRF accommodates a double-shift schedule during busy tourist months and a single-shift schedule during off-peak seasons, ensuring efficient year-round operation.
- **High performance:** Capable of operating non-stop, double shift, daily the prMRF accomplishes high recovery rates. The system's AI is regularly retrained to improve sorting accuracy and reduce waste contamination.
- **Remote monitoring:** A web-based interface allows production managers to remotely monitor operations and access real-time data on robotic processes and hyperspectral imaging, enabling iterative improvements even under challenging conditions.
- **Enhanced sorting capabilities:** Achieves an average of 120 picks per minute, but can easily be upgraded with additional robotic sorters to reach even higher productivity.
- **Sorts 7 different material types:**
    - PET (Polyethylene Terephthalate) – plastic bottles
    - HDPE (High-Density Polyethylene) – detergent bottles, milk jugs
    - Aluminium – cans and food packaging
    - PAP – drinking cartons
    - PP (Polypropylene) – food containers, bottle caps
    - PS (Polystyrene) – foam packaging, disposable cups
    - LDPE (Low-Density Polyethylene) – plastic bags, wraps

RECLAIM's decentralised material recovery solution is, first and foremost, a European solution for a European context which will accomplish material recovery in distant, geographically isolated areas **not sufficiently covered by current waste management models**. In other words, the prMRF will reclaim recyclable materials that are **less likely to be recovered** by centralised MRF systems. In doing so, the prMRF can reduce **greenhouse gas emissions** (GHGs) as recycling of sorted waste can avoid emissions associated with use of virgin materials. Ultimately, RECLAIM's innovative technologies for waste management and material recovery will strengthen **Europe's competitiveness** and independence by increasing availability of **secondary raw materials**.

Despite being designed for a European context, the prMRF can adapt to similar challenges globally. Beyond the project, the prMRF is expected to contribute to **corporate sustainability**, especially for companies that could buy or rent and deploy the portable facility on-site, in their own scale and in full connection with their circular transition and social welfare objectives.

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