RURACTIVE OPEN CALL - CHALLENGE 22

Title of the challenge	**Bio-waste management and reuse on islands**
Dynamo (pilot location)	Zadar archipelago, Croatia
RDD (Rural Development Driver) *addressed by the challenge*	Sustainable agri-food systems and ecosystem management
Overall context description and specific context to be addressed by the challenge	The Islands that are part of the City of Zadar's administrative area represent small, remote, and isolated communities with inefficient waste management systems. With limited space and no legal waste disposal sites, waste production continues to rise, leading to illegal dumping, harming the local biodiversity for which these islands are particularly recognised. Long distances and high costs also hinder efficient sorting and transportation of waste to the mainland. Most islanders want to be able to properly separate waste for recycling purposes, and bio-waste, which accounts for a third of the total waste, is seen as a valuable resource. However, bio-waste is currently transported entirely to the mainland, removing valuable organic materials that could benefit local agriculture. This is especially relevant for the island of Silba, the farthest island from the mainland and the most visited by tourists. Silba experiences significant seasonal changes in population, from a few hundred, in the winter to several thousand during the summer months. This population fluctuation is strongly reflected in the amount of waste generated. To benefit the local population and prevent the generation of waste that exceeds the island's capacity to manage, new methods of production, consumption, and bio-waste disposal are needed. Developing a system for the storage and subsequent use of bio-waste aligns with the island's goal of achieving self-sustainability in all aspects, particularly for composting in agricultural production, reducing dependence on mainland resources.
Scope of the Challenge	Reduce transportation costs and environmental impact while supporting the development of a circular bio-economy on the island of Silba, also by integrating organic waste materials

	into local agricultural practices, ensuring sustainable, localised resource loops. Limitations to consider include the island's geographic isolation, limited infrastructure, and population size, which affect the scalability and feasibility of certain solutions.
Solution requirements	Solutions should focus on: • On-site bio-waste processing or composting systems that can produce natural fertilisers for local agricultural use, with advanced technologies adaptable to small, remote islands • Modular, scalable, intuitive and low-cost solutions that can adapt to Silba's seasonal population changes • Data collection and management • Open Data source and Open Access
Specific objectives and expected outcomes	• Reduce harmful emissions and negative impacts on marine ecosystem by implementing efficient on-site bio-waste composting systems and minimising the need for transportation of bio-waste to the mainland (O: Reduction in greenhouse gas emissions by decreasing waste transportation distance) • Reducing the dependency on mainland facilities for waste management • Increase community awareness and participation in sustainable waste management, leading to better waste sorting (O: Increase of total collected municipal solid (bio)waste per capita) • Enhance local agricultural productivity through the availability of natural fertilisers generated from processed bio-waste (O: Reduce dependence on chemical and purchased fertilizers) • Creating a circular bio-economy that retains organic materials on the islands to support local ecosystems and food production
Available resources	• Data on the existing waste collection and processing models on the island • Cooperation with the local utility company in charge of waste management and community partners to facilitate the testing and implementation of proposed solutions