

Invalor 101 – a network for joint valorization of material flows in tourist areas

Project object

The project “Invalor 101 - A network for joint valorization of material flows in tourist areas” has been approved by the program “Interreg V-B, Balkan Mediterranean 2014-2020” in the field of Environment.

Invalor 101 aspires to create a network of tourist areas and to demonstrate new ways of cooperating in the joint management of glass waste, before and after the end of the Project. More specifically, a mobile pilot unit will be designed and constructed that will utilize glass in order to develop innovative building materials using geopolymerisation technology. Geopolymerisation is a new, innovative technology that has been developing rapidly over the last decade.

This technology relies on the chemical reaction between inorganic solids, rich in silicon and aluminum oxides and alkaline silicates, under highly alkaline conditions and leads to the production of inorganic polymeric materials, geopolymers. The specific know-how of the academic partners of the program in Greece, Cyprus, Albania and Belgium, helps to achieve the transfer of glass upgrade technology to the Municipalities and consequently to the Municipality of Megara.

The pilot unit will be a mobile equipment which will be owned by the Municipality of Megara and will be installed in an area belonging to the Municipality of Megara. It will utilize glass waste to produce construction products. The glass will be collected in suitable bins during the summer months when there is an increase in the glass waste flow.

The pilot unit will be easily and under low cost transported and will treat waste in the off-peak months, making it possible for network members to share it. The unit will act as a demonstration element of the technology and its capabilities for the citizens of the municipality and the nearby municipalities. At the same time, a specialized Life Cycle Analysis (LCA) as well as a Sustainable Development Plan will determine the conditions under which the network will be more effectively spread and will raise awareness.

Project Budget: 795.021,47€

ERDF contribution: 630.930,61 €

IRA contribution: 164.090,86 €

Expected results

In the wider Mediterranean region and in the Balkan region in particular, the expansion of collective waste management planning has not been efficient enough to handle large waste volume. In the coastal and islandic areas, the stable conditions that industrial recycling schemes require cannot be supported by waste flux. In Greece, Cyprus and Albania, the seasonal variation of tourism flows during the summer period, has a direct impact on the volume of municipal waste (MSW).

It has been regularly documented those volumes tend to increase disproportionately during the peak tourism seasons. One of the main waste streams is GLASS. Based on research (Ministry for the Environment, Energy & Climate Change –Hellastat, September 2009), 3-9% of the total waste of these countries during high seasons comes from glass. The glass waste comes from bottles used (beer, beverages etc.) which at present has no way of being recycled (apart from occasional glass industries), in contrast to organic waste, for which composting is already a mature technology, e.g. as applied in the Paralimni Municipality (E4). Thus, glass waste ends up in landfills.

As a result, the recyclability of the glass waste is an important problem for most touristic Municipalities during high season.

Invalor101 tackles this problem proposing an innovative and flexible approach which aims at responding to the seasonal variations of glass waste in tourist areas and at providing employment opportunities for the winter periods. The target of the Invalor101 project is to manufacture and demonstrate the operation of a mobile Pilot Unit, PU, (standard 12m container type) which utilizes glass for the de-

velopment of alternative building materials. The operation is based on the geopolymerisation technology; a green technology which generates less CO2 and requires less energy consumption compared to typical building materials. The produced materials (geopolymers or inorganic polymers) exhibit ceramic-like properties with good resistance to fire and high mechanical properties such as compressive strength.

Partners of the Project

- SE1: University of Patras (Special Account for Research Funds) – Greece, Partner Coordinator
- E2: Municipality of Megara- Greece
- E3: Frederick Research Centre – Cyprus
- E4: Municipality of Paralimni – Cyprus
- E5: Polytechnic University of Tirana - Albania
- E6: Municipality of Vlora - Albania
- E7: Catholic University of Leuven - Belgium / Flanders, Observer Partner

Funding

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Contact details

<https://invalor.evolution-isa.gr/>