CERIS : Civil Engineering Research and Innovation for Sustainability

BEWARE – Development of Professional Courses in Building Resilience and Sustainability to Extreme Weather Events

Summary

Climate change is considered one of the most significant challenges of our time. Human activities are closely related to energy and water consumption and carbon emissions. Buildings are responsible for approximately 40% of energy consumption and 36% of CO_2 emissions in the European Union (EU), with around 26% of water footprint consumption related to the energy sector.

Innovation in the construction sector is achievable by applying green and sustainable technologies and digitalisation toward a more sustainable, climate resilient, and inclusive Europe. The BeWaRe project arises from the need to qualify engineers and other professionals in the construction industry for the job market in line with the requirements of the European Green Deal.

The BEWARE project, funded by European Erasmus+, arises from the need to qualify engineers and other professionals in the construction industry to make building envelopes more resilient to climate change through innovative and sustainable solutions with a low carbon footprint.

BeWaRe will enable the trainees to:

- Assess the vulnerability of buildings to extreme weather events;
- Propose measures that can contribute to climate proofing of the building against extreme weather events;
- Apply several sustainable solutions to increase the resilience of buildings envelope to weather extremes and their surroundings;
- Enhance the energy efficiency of the building, following the Energy Performance of Buildings Directive;
- Learn how to use digital tools to benefit the building envelope's resilience and sustainability to extreme weather events.

Figure 1. BeWaRe meeting at Lisbon in IST.

The objectives are:

i. To improve the level of competencies and skills of engineering professionals;

ii. To integrate digitalisation and innovative technologies in the construction field;

iii. To develop and implement new and innovative professional courses on buildings' resilience in line with the European Green Dea;

iv. To close the gap between knowledge needs, lack of educational programmes, and challenges faced by organizations (private, public, and NGOs);

v. To rethink solutions for buildings to cope with extreme weather events, contributing to their resilience, and considering the different realities of the countries;

vi. To improve the energy efficiency of housing stock and reduce its carbon footprint, contributing to the reduction of EU greenhouse gas emissions.

Coordinated by IST-UL, and with a budget of over 228 000,00€, the project expects to achieve the following results:

i. Development of a VET training programme on eco-design; insulation materials; nature-based and waste-waste solutions; energy efficiency; digitalisation; and risk assessment;

ii. Creation of a VET digital training platform with articles, resources, and tools;

iii. Compilation of a practicum with case studies of real-life and best-practice examples;

iv. Development of guidelines and policy recommendations.

BeWare

Project Reference

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Leading Institution

IST-UL – Instituto Superior Técnico Universidade de Lisboa (Portugal)

Partners

RWTH Aachen – Rheinisch-Westfaelische Technische Hochschule Aachen (Germany), IECE – Institute for Research in Environment, Civil Engineering and Energy (North Macedonia), UNIR – International University of La Rioja (Spain), Creative Thinking Development (Greece)

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228 120.00€

CERIS

59 366.00€

Project Website

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