ENI CBCMED
Cooperating across borders in the Mediterranean

Project funded by the EUROPEAN UNION

REGIONE AUTÒNOMA DE SARDIGNA
REGIONE AUTONOMA DELLA SARDEGNA

Med-EcoSuRe

TOWARDS EFFICIENT AND SUSTAINABLE UNIVERISTY BUILDINGS

Newsletter issue #8 | November 2023

2.9M
TOTAL BUDGET

2.6M
ENI FUNDING

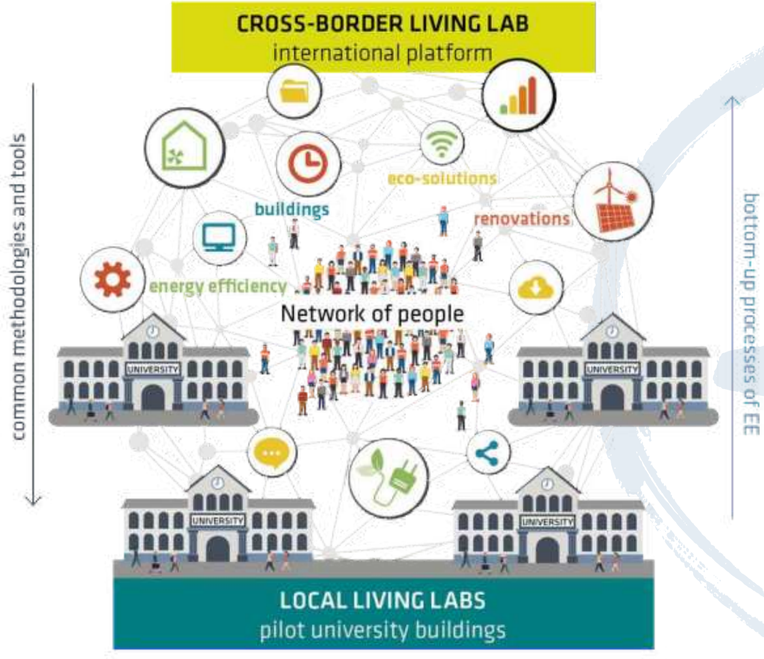
2019
2023

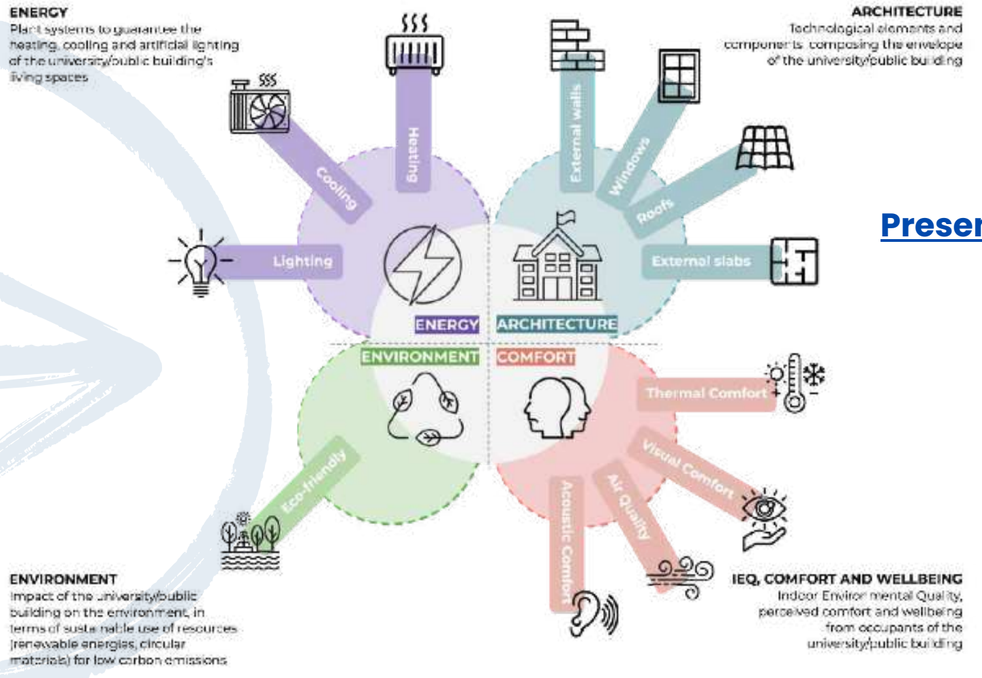
Med-EcoSuRe project (*Mediterranean University as Catalyst for Eco-Sustainable Renovation*) aims at implementing **innovative** and **eco-sustainable energy renovation solutions for university buildings in the Mediterranean**, while introducing an active **collaborating approach for decision support**, among key actors involved.

The project has reached its end. Read this final issue of the **newsletter** to learn about what has MedEcoSure achieved. We thank you for following our progress and we hope that the results listed below will continue to be a valuable contribution for your professional work

LIVING LAB

When it comes to implementing energy renovation in university buildings or public buildings in general, the main barrier is the lack of an integration process involving all the actors playing a active role in the renovation cycle. Thus, the project initiated an intermediation entity, a **Living Lab**, for the collaboration between academics, decision-makers and stakeholders, bringing these actors to build a common understanding of the eco-sustainable building renovation issues with the aim to empower regional knowledge-to-action process.





[Presentation & Objectives](#)
[Structure](#)
[Members](#)

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TOOLS

More Info

Several Renewable Energy and Energy Efficiency measures were selected and implemented in three universities based on recommendations drawn from **energy audits** and through **surveys** (for emerging solutions), workshops and courses, while exploiting a set of **tools** developed as a decision support to efficiently design, plan and evaluate the renovation process

More Info

DEMONSTRATION ACTIONS

400 kWp Capacity installed

612 MWh/Y generated energy

510 tCO2/Y emissions saved

150 k€/Y savings

STRATEGIC PLANS

A total of four **renovation strategies** were delivered with the goal of proposing recommendations for the adoption of EE and RE practices in university buildings that will enable to contribute to national and regional strategies objective.
These strategies were officially **adopted,** through agreements, by university and national decision makers.
Based on these findings, the team is planning to continue the work beyond the project lifetime by increasing the scale from buildings to university campus

Med-EcoSuRe

Letter of adoption of a Strategic Plan for University Building Retrofitting

This letter is signed by ***Palestinian Electricity Transmission Company (PETL)*** represented by ***Eng. Nashat Abu Bakr*** to adopt a Strategic Plan for University Building Retrofitting developed by ***An-Najah National University*** in the framework of Med-EcoSuRe project.

TRAINING & CAPACITY BUILDING

The Living Lab approach adopted enabled to reach all the stakehodlers/beneficiaries foreseen by the project, whose synergies have been developed through training and capacity building programmes based on the operative work on the pilot project and the adoption of the tools developed

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BENEFICIARY

STUDENTS
PROFESSORS
ENERGY MANAGERS
NATIONAL AUTHORITIES...

Training and capacity building: Smart Micro-Grid systems

Jan 21-May 2023

Training : planning and optimization of UB renovation: Training of partners -> Training of stakeholders

Nov 21-June 2023

Training: Living Lab establishment and Toolkit for retrofit solutions SEACAP4SDG project

Oct-Dec 2022

Series of webinars "Recommendations fostering the transition towards energy efficient university building stock"

Jun-Jul 2020

Course: Energy Efficiency Action Plan in the Higher Education Building Sector

Oct 20-Jan 2021

Thematic seminar: innovative solutions enhancing the energy performance and indoor wellbeing in university buildings

Jun-Jul 2021

Training: Design, implementation and operation of Photovoltaic systems

Mar-Apr 2021

SUSTAINABILITY

More Info

More Info

GUIDELINES FOR THE IMPLEMENTATION FOR ECO-SUSTAINABLE RENOVATION OF ENERGY EFFICIENCY PROJECTS AT MEDITERRANEAN UNIVERSITIES

AN ONLINE PLATFORM FOR THE TRANSFER OF KNOWLEDGE AND BEST PRATICES
MEDBEXLIVE.ORG

A CHARTER SIGNED TO EXPLOIT AND CAPITALIZE ON THE LIVING LAB RESULTS BEYOND THE PROJECT LIFETIME

More Info

RESEARCH VALORIZATION

Latest publications are available HERE

energies

MDPI

Article

The Carbon Footprint of Thermal Insulation: The Added Value of Circular Models Using Recycled Textile Waste

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Abstract: The goal of climate neutrality by 2050 drives the building sector towards stricter control of processes and products, leading to a substantial reduction of embodied carbon throughout the life cycle. Many of the most used insulation materials have a high carbon footprint, mainly due to the production phase (from cradle to gate). The need to reduce these impacts has led to the implementation of materials whose predominant raw material is recycled material in order to reduce the embodied carbon. The contribution presents the results of a research work that analysed the potential of insulation materials obtained from textile waste, evaluating not only their energy performance but also, above all, their environmental impact in terms of carbon footprint. It starts from a state-of-the-art analysis of the main traditional and new-generation thermal insulation materials, not only in relation to performance but also to environmental impacts, in order to investigate the opportunities offered using insulation materials designed according to circular models (10R) and produced with industrial and/or post-consumer waste fabrics, through a carbon footprint comparison. To support the choice of this type of insulation, a multi-criteria evaluation method is proposed through which the comparative analysis of the most significant insulation products selected is carried out.

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Extending the concept of high-performance buildings to existing dwellings

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ARTICLE INFO

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Building Renovation
Residential buildings
Life Cycle assessment

ABSTRACT

The ongoing energy crisis in Europe is highlighting the role of the building sector in energy consumption, particularly in countries like Spain, where 90.4% of existing dwellings lack thermal efficiency. Encouraging homeowners to undertake renovations can prove challenging, especially when complex thermal insulation techniques are involved. This study defines the optimal renovation package for six residential building models for 90% of southern Europe climates. Three methodologies were employed for optimal selection: a conventional cost-optimal approach, a method considering the impact of internal insulation on floor loss, and a CO_{2eq} emissions approach based. The findings reveal that, on average, the primary energy demand of existing buildings can be reduced by 57%, with potential savings reaching up to 75% for a cost-optimal approach. Internal insulation significantly has a significant impact on floor loss costs, accounting for up to 60% of a building's life cycle cost, where the property value plays a significant role in the choice of insulation material, especially when considering the same thermal resistance. On the other hand, the CO_{2eq} emission-based approach results in buildings with lower energy demand but more costly. Choosing the most suitable methodology for life cycle assessment requires a balance between economic constraints and environmental considerations.

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