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Cooperating across borders in the Mediterranean

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REGIONE AUTÒNOMA DE SARDIGNA
REGIONE AUTONOMA DELLA SARDEGNA

SEACAP 4 SDG

Med SE(A)CAP integration through uniform adapted assessment and financing methods, mainly targeting buildings in education and health sectors, for sustainable development goals in a smart society

Output 4.2.

Set of stakeholders trained for SE(A)CAP implementation at local and regional level

Report on Training sessions on SRPs, Training of SLIT and Local LLs

Developed by

UNIVERSITY OF PATRAS
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

المركز المتوسطي للطاقات المتجددة
MEDREC
MEDITERRANEAN RENEWABLE ENERGY CENTRE

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1 Introduction

The report focuses on the concept of Living Labs and specifically highlights the SEACAP 4 SDG Living Lab (SLL). Living Labs are collaborative innovation ecosystems that bring together citizens, companies, researchers, and public administrations to create, test, and validate new solutions, ideas, or services in real-life contexts. These labs operate based on the principles of co-creation, emphasizing the involvement of users and stakeholders throughout the decision-making process.

The SEACAP 4 SDG Living Lab aims to support cost-effective energy rehabilitations of public buildings in the Mediterranean region. It leverages the expertise of various stakeholders to explore innovative socio-economic tools and develop user-oriented solutions for energy refurbishment, considering local specificities such as energy poverty. The lab operates through a network of people connected via an ICT platform, facilitating collaboration, communication, and knowledge sharing.

The establishment of the SEACAP 4 SDG Living Lab involves a three-level training program. Level 1 focuses on training local external experts on the selected reference projects (SRPs) to enhance their understanding and utilization of the available solutions and results. Level 2 involves training the SEACAP Local Implementation Team (SLIT), empowering them to become trainers themselves and contribute to the finalized consolidated methodology. Level 3 comprises training sessions for stakeholders in partner regions, educating and engaging them on SEACAP implementation and the use of the Living Lab methodology.

The training program aims to empower local experts and stakeholders with the necessary knowledge and skills to effectively utilize SRP outcomes and establish sustainable and innovative practices. The Living Lab approach ensures co-creation and alignment with community needs, fostering the development of solutions that contribute to the project's overall objectives.

2 Defining Living Labs (LLs)

Living Labs are new "public-private-people partnership" forms (Veeckman et al., 2013) in which citizens, companies, researchers and public administrations collaborate according to the "quadruple helix" approach (Cleland et al., 2012) in order to create, test and validate new solutions, business ideas or services in real life contexts.

One of the elements on which Living Labs are founded is co-creation. In the literature, the term co- creation refers both to a design method (i.e. shared design of solutions) and to an overall approach, starting from the identification of criticalities and ending with the evaluation of the solutions adopted (Koning et al., 2016). In these guidelines we will refer to co-creation as an approach: this is defined as a form of shared participation in which, through the use of creative methods, both the innovation and the continuous involvement of users, citizens and any other stakeholder are emphasized in all steps of the decision-making process (Pappers et al., 2020). The aim of the Living Lab environment is to stimulate cooperation among all the relevant actors, together with their different interests and cultural or work backgrounds, with the ambition of replacing the classic decision-making top-down approach moving to a user/citizen driven one.

The Living Lab concept is based on a systematic user co-creation approach integrating research and innovation processes (bringing together users, R&D institutions, producers, service providers and all relevant stakeholders in focused and integrated development process). These are integrated through the co-creation, exploration, experimentation and evaluation of innovative ideas, scenarios, concepts and related technological artefacts in real life use cases. Such use cases involve user communities, not only as observed subjects, but also as a source of creation. This approach allows all involved stakeholders to concurrently consider both the global performance of a product or service and its potential adoption by users. This consideration may be made at the earlier stage of research and development and through all elements of the product life-cycle, from design up to recycling.

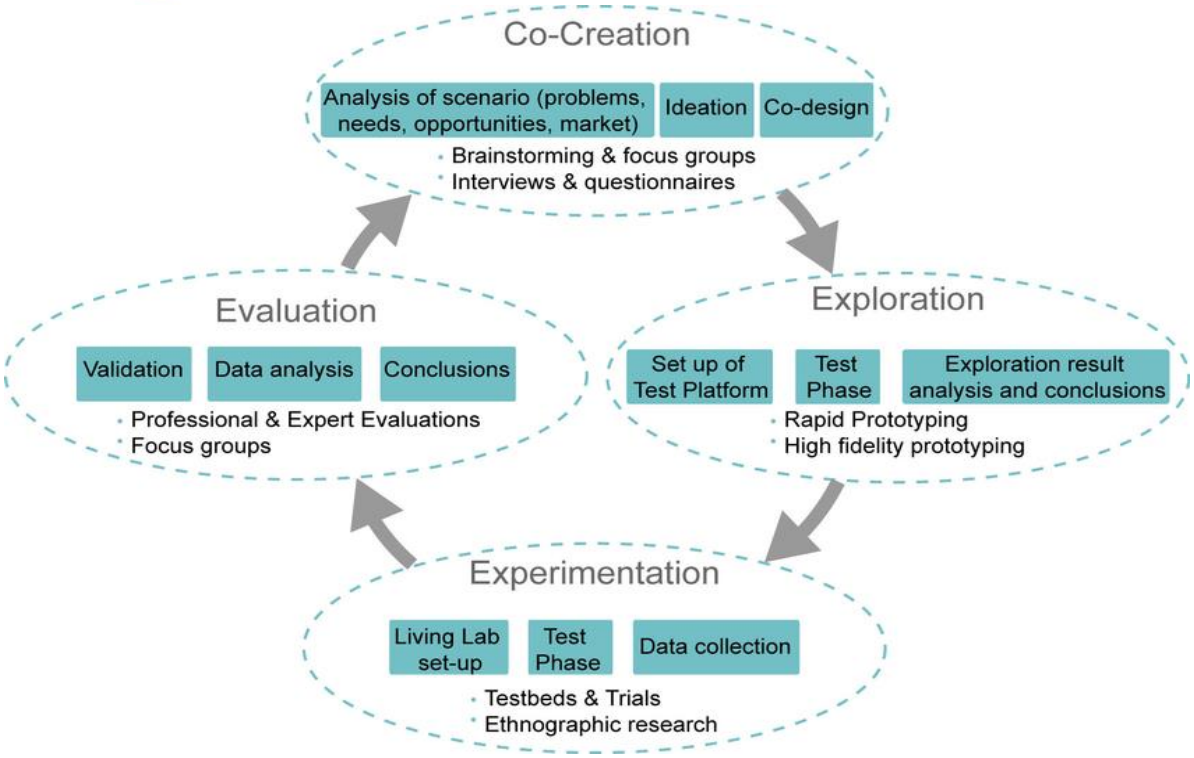


Figure 1 A visual representation of the Living Lab process (Vicini et al. 2012)

3 SEACAP 4 SDG Living Lab

3.1 Definition of the scope

The SEACAP 4 SDG Living Lab (SLL) introduces innovative socio-economic tools, with the creation of novel user-oriented solutions, to support the cost effective energy rehabilitations of public buildings across the Mediterranean. SLL's philosophy is to turn users, from subjects testing modules against requirements, into value creators contributing to the ***exploration of emerging ideas, breakthrough scenarios and innovative concepts.***

The SEACAP 4 SDG project thus capitalizes on selected reference projects (SRP), by considering their outputs and outcomes, identifying characteristics to be generalized, and by adapting gained knowledge to maximize efficiency and effectiveness of energy refurbishment strategies adapted to local Med specificities, notably energy poverty.

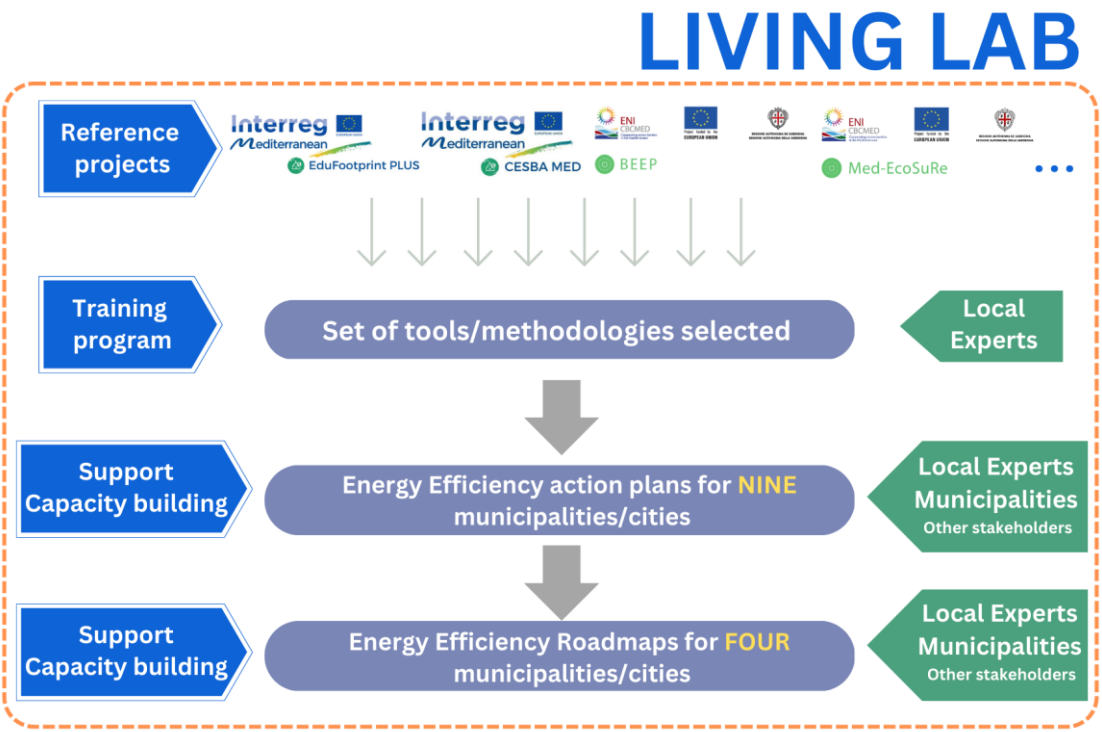


Figure 2 SEACAP 4 SDG Living Lab

3.2 KPIS in Living Labs and Training activities

KPIs (Key Performance Indicators) are critical in Living Labs and Training because they provide a way to measure the success of the program and identify areas for improvement. KPIs are specific metrics that are used to evaluate the performance of the program against its objectives. They help to align the program with the organization's goals and create accountability for performance. Here are some of the key benefits of using KPIs in Living Labs and Training:

1. Measuring Success: KPIs help to measure the success of the program. By defining and tracking KPIs, you can evaluate whether the program is meeting its objectives and delivering the desired outcomes.
2. This information can then be used to make data-driven decisions about how to improve the program and optimize its performance.
3. Identifying Areas for Improvement: KPIs provide feedback on what is working well and what needs improvement. By tracking KPIs, you can identify areas of the program that are not performing as well as they should be. This feedback helps to identify areas for improvement and make necessary changes to optimize the program.
4. Creating Accountability: KPIs create accountability for performance. By defining and tracking KPIs, everyone involved in the program has a clear understanding of what is expected of them and how their performance will be evaluated. This accountability helps to ensure that everyone is working towards the same objectives and that performance is consistent across the program.
5. Aligning with Objectives: KPIs help to align the program with the project's goals. By defining KPIs that are aligned with the project's objectives, everyone involved in the program is working towards the same goals. This alignment helps to ensure that the program is contributing to the organization's overall success.
6. Facilitating Communication: KPIs facilitate communication between different stakeholders involved in the program. By tracking and reporting on KPIs, stakeholders can easily understand the progress being made and discuss any issues or concerns that need to be addressed. This communication helps to ensure that everyone is working together towards the same objectives.

To create KPIs for a Living Lab or Training program, it is important to first define the objectives of the program. Once the objectives are clear, you can then identify the specific metrics that will be used to evaluate performance. These metrics should be specific, measurable, achievable, relevant, and time-bound. They should also be aligned with the overall objectives of the program and the organization. Once the KPIs have been defined, they should be communicated clearly to everyone involved in the program, and progress should be tracked and reported regularly. This tracking and reporting should be used to evaluate performance and identify areas for improvement.

3.3 SEACAP Living Lab environment

Cross Border Living Lab (CBLL)

The SEACAP Living Lab proposed is an international network of people with knowledge and know-how on eco-solutions, connected through an ICT platform related to the renovation of public buildings

Network of people

All the teams of partners and stakeholders involved in SEACAP LL project are active members of the network. The network's keyword is collaboration, encompassing a wide range of different operational and strategic aspects, covering the processes related to collaboration arrangements (e.g. business models, partnership agreements) and tools to support collaboration and communication.

ICT Platform

The ICT platform created and implemented in the framework of Med-EcoSuRe project will be scaled up and used to disseminate the best practices, capitalize on the project findings, and ensure the gathering of information and cooperation among the project partners and stakeholders. The platform is a virtual space where the international network of people shares knowledge and eco-solutions. The SLL will be supported by a common data repository to share existing methodologies and technologies targeted for the Mediterranean area, and the outputs, implementing training and coaching paths.

Local pilots/Living Labs (LLL)

The local Living Labs, consisting of 9 pilot cities/municipalities, places for the physical setting up of the pilots, physical meeting points of local actors (decision makers, national/regional authorities, building/energy managers, companies, experts, Representatives of academia and research sector) and sites of pilot projects.

As demo sites, LLLs will experiment a participative approach to facilitate the twinning and knowledge sharing among local actors and also to encourage a proactive end-user behaviour. LLLs will facilitate the relation among stakeholders, creating the prerequisite for a common vision oriented to collect, share, promote and implement best practices on energy renovation and SEACAP enriching the whole network.

Figure 3 Living Lab Coordination

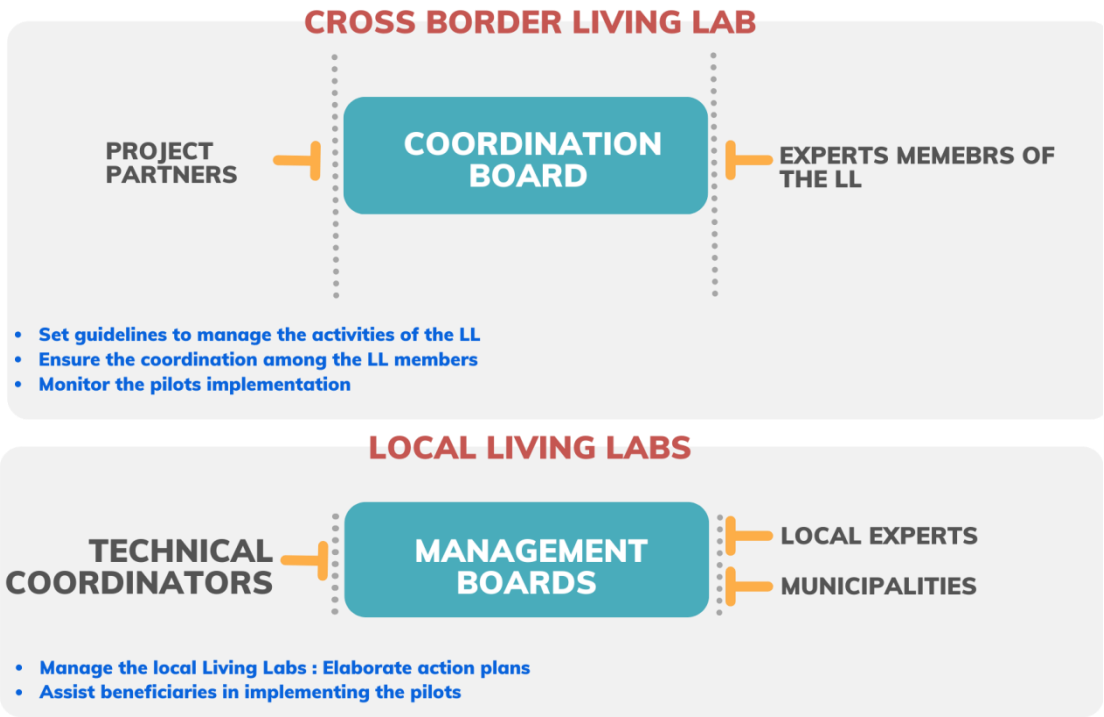


Figure 4 Governance of the SLL

3.4 SEACAP (4SDG) Living Lab establishment

Living Labs are collaborative innovation ecosystems that involve various stakeholders, such as researchers, citizens, socio-economic operators, and public authorities. These labs serve as real-world testbeds where new ideas, technologies, and services can be co-created, tested, and evaluated in a controlled environment before being scaled up or implemented in a larger context.

In the context of our project, the SLL methodology developed for the previous project output (Output 4.1: SEACAP 4 SDG methodology) has been shared with the SE(A)CAP Local Implementation Team (SLIT). The SLIT consists of Project Partners, with at least one member per Partner, and the engaged Associated Partners. The purpose of sharing the methodology with the SLIT is to provide them with the necessary knowledge and tools to establish and operate the SEACAP 4 SDG Living Lab. To ensure effective dissemination and implementation of the SLL methodology, an initial contact list was developed to identify the members of the SLIT.

The training program for establishing the SEACAP (4SDG) Living Lab and utilizing the Selected Reference Projects (SRPs) outcomes is designed to have three levels:

- ***Level 1:*** Training sessions on SRPs. This program aimed to train local external experts on how to use and exploit the solutions and results developed by the SRPs. The training was be conducted by the reference project partners who were responsible for developing the selected outcomes. It provided participants with a comprehensive understanding of the SRPs and how to leverage their findings in the context of the SLL.
- ***Level 2:*** Training of SLIT. The training of the SLIT members is a crucial step in preparing them to become trainers themselves. After receiving this training, the SLIT members were able to propose integration of their knowledge and experience into a finalized consolidated methodology. This process was based on identifying common needs for developing Sustainable Energy and Climate Action Plans (SE(A)CAP) in the Mediterranean area.
- ***Level 3:*** Local Living Labs - Stakeholders training. Once the SLIT was trained and the consolidated methodology is finalized, the SLIT is responsible to deliver training sessions, one for each partner region. The initial conception of this activity was for 9 online sessions, however based on each partner needs the local training was modified to include either online or physical sessions and in many cases more than one session per partner. These training sessions are mandatory for the stakeholders in the corresponding regions. The purpose of these sessions is to educate and engage stakeholders on the implementation of SE(A)CAP and the utilization of the SLL methodology.

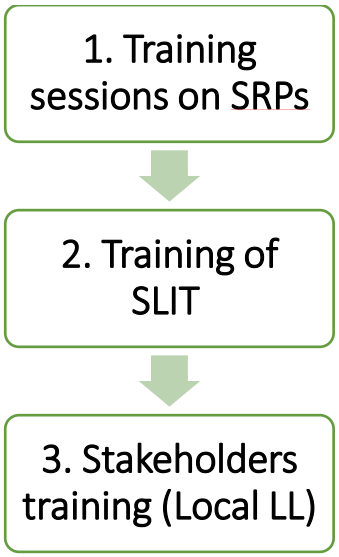


Figure 5 Levels of Training

Overall, the training program aims to empower local experts and stakeholders with the knowledge and skills necessary to effectively utilize the outcomes of the SRPs and establish sustainable and innovative practices in the partner regions. By involving various stakeholders, the Living Lab approach facilitates co-creation and ensures that the solutions developed are aligned with the specific needs of the communities and contribute to the overall objectives of the project.

4 Training on Selected Reference Projects (SRPs)

4.1 Training scope

In order to provide the necessary support and accompaniment to the cities/municipalities, beneficiaries of the project, local external experts from the partners' countries will be contracted. Among other activities, the local experts will support the cities/municipalities in identifying the most appropriate tools, among the SRP outcomes, to be tested and implemented in a number of pilot buildings.

A training program has been developed specifically for the local external experts to enhance their understanding and utilization of the available solutions and results for planning and implementing energy-efficient renovations in buildings. This program covers a wide range of topics, including best practices, tools, and methodologies that have been developed by the reference project partners responsible for the selected outcomes.

To facilitate access to the selected outcomes within the SEACAP 4SDG framework, a dedicated LINK in the project's webpage has been provided. This link serves as a valuable resource for obtaining more information about the outcomes and accessing the relevant documents.

For further context, the SEACAP 4SDG project has successfully identified and validated several solutions for energy retrofitting of buildings. These solutions have been deemed highly useful and can be applied by municipalities and professionals in their daily work to develop or improve energy efficiency and renewable plans. Municipalities and local authorities, with the assistance of external entities, will have the opportunity to analyze and determine which outcomes from the toolkit are most relevant to their specific contexts. They will also participate in knowledge transfer activities and capacity-building workshops aimed at training technicians to implement and test the selected outcomes effectively.

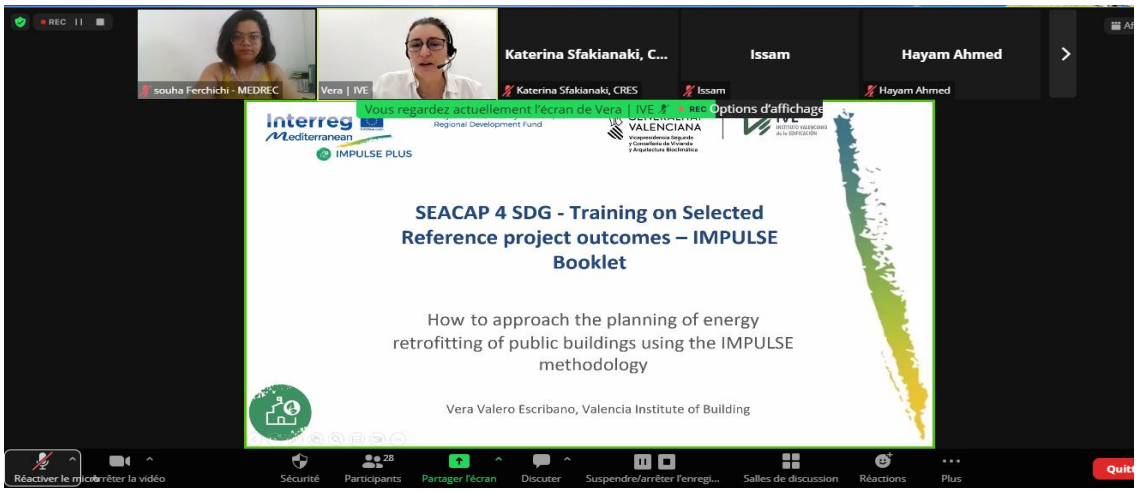
4.2 Training timeframe

The training sessions for the Selected Reference Projects (SRPs) outcomes were conducted from October 10th to December 5th, 2022. A total of 18 outcomes were covered in 16 training sessions, with detailed information about the agenda provided in Annex 1. These training sessions were conducted online, ensuring accessibility for participants from various locations. The coordination and organization of these sessions, as well as the identification of trainers, were handled by UPatras and MEDREC (PP2 and PP8). The trainers consist of the reference project partners responsible for the selected outcomes. The trainer's information is available on Annex 2. These sessions aimed to provide comprehensive training and information on the available SRP outcomes, equipping participants with the knowledge and skills necessary for their effective utilization.

4.2.1 Session 1: Training on IMPULSE project outcomes

Date: 10 October 2022

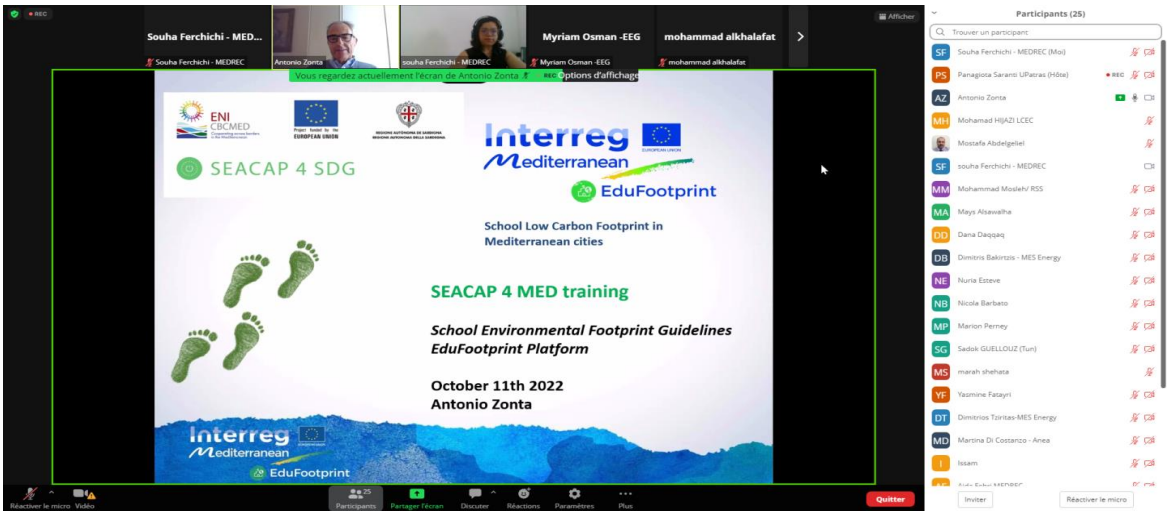
- *Preparatory Setup*
- *KPIs Processor*
- *METHODOLOGY BOOKLET*
- *FINANCIAL Scheme*



4.2.2 Session 2: Training on EDUFOOTPRINT project outcomes

Date: 11 October 2022

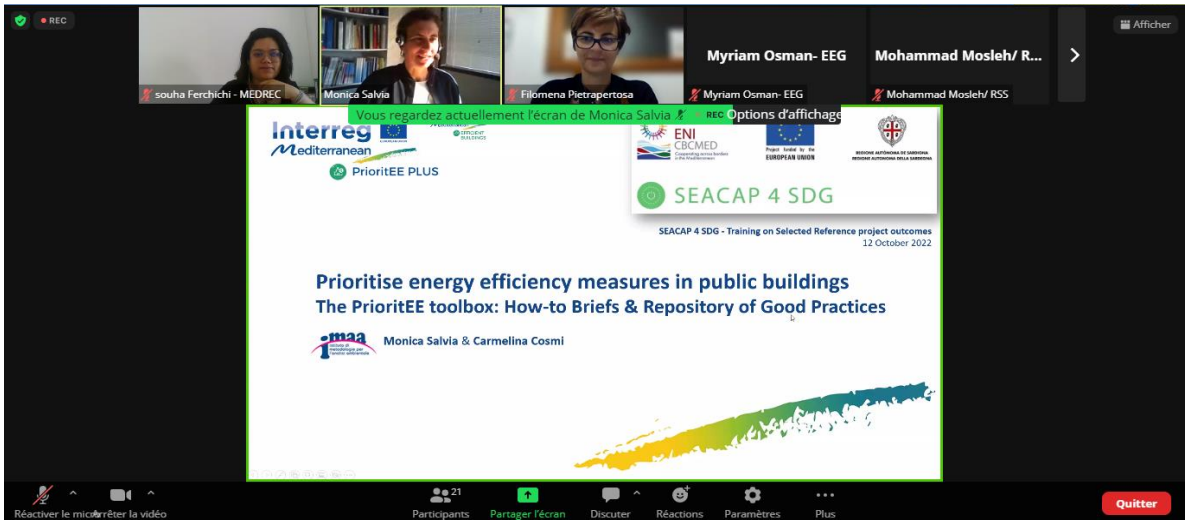
- *EDUFOOTPRINT School Enviromental Guidelines*
- *EDUFOOTPRINT Platform*



4.2.3 Session 3: Training on PRIORITEE project outcomes

Date: 12 October 2022

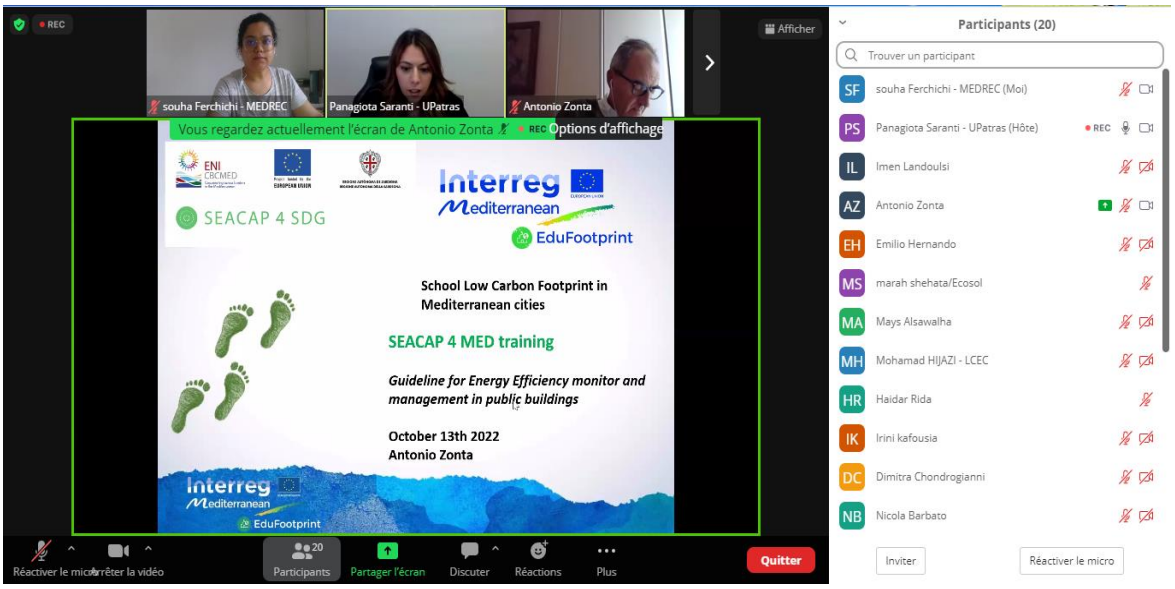
- *PRIORITEE HOW to BRIEFS*
- *PRIORITEE REPOSITORY of GOOD PRACTICES*
- *PRIORITEE PLUS Training Materials*



4.2.4 Session 4: Training on EDUFOOTPRINT project outcomes

Date: 13 October 2022

- *EDUFOOTPRINT guidelines for Energy Efficiency monitoring and management in public buildings*



4.2.5 Session 5: Training on Med-EcoSuRe project outcomes

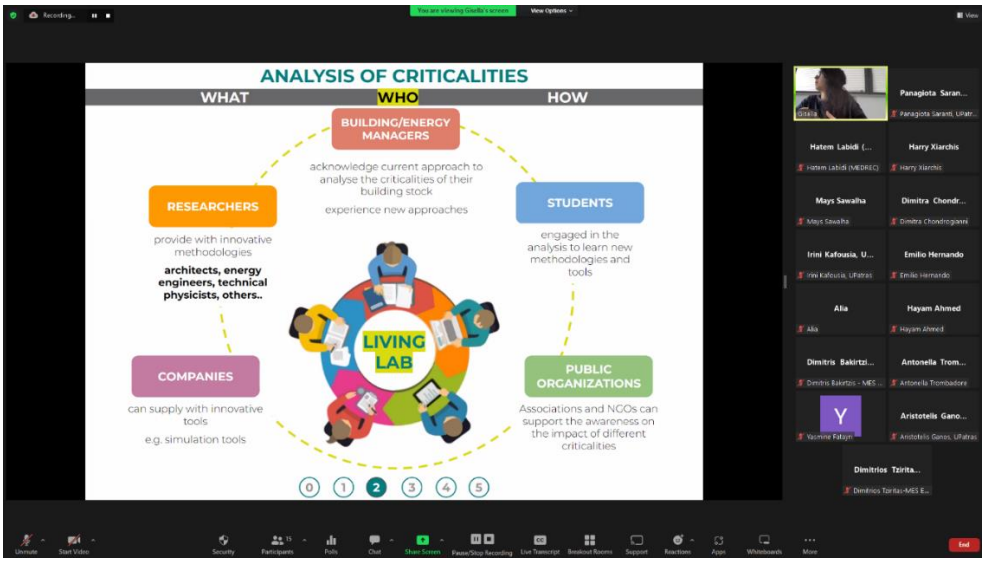
Date: 18 October 2022

- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - *Toolkit presentation*
  - *STEP 1. Knowledge Framework*
  - *STEP 2. Analysis of Criticalities (criteria and benchmarking)*

4.2.6 Session 6: Training on Med-EcoSuRe project outcomes

Date: 19 October 2022

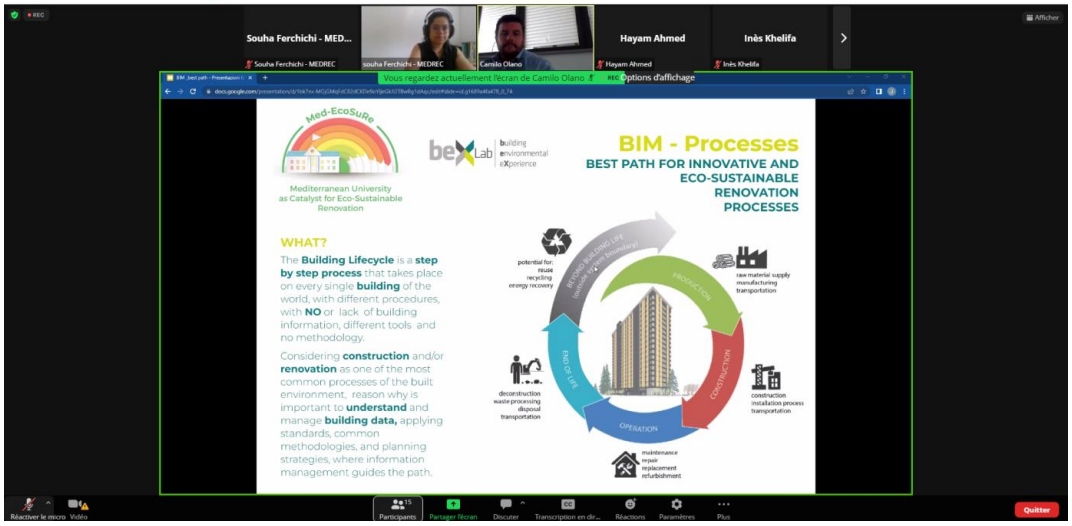
- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - *STEP 2. Analysis of Criticalities (criteria and benchmarking)*
  - *STEP 3. Planning and Design (focus on best-practices and abacus)*



4.2.7 Session 7: Training on Med-EcoSuRe project outcomes

Date: 20 October 2022

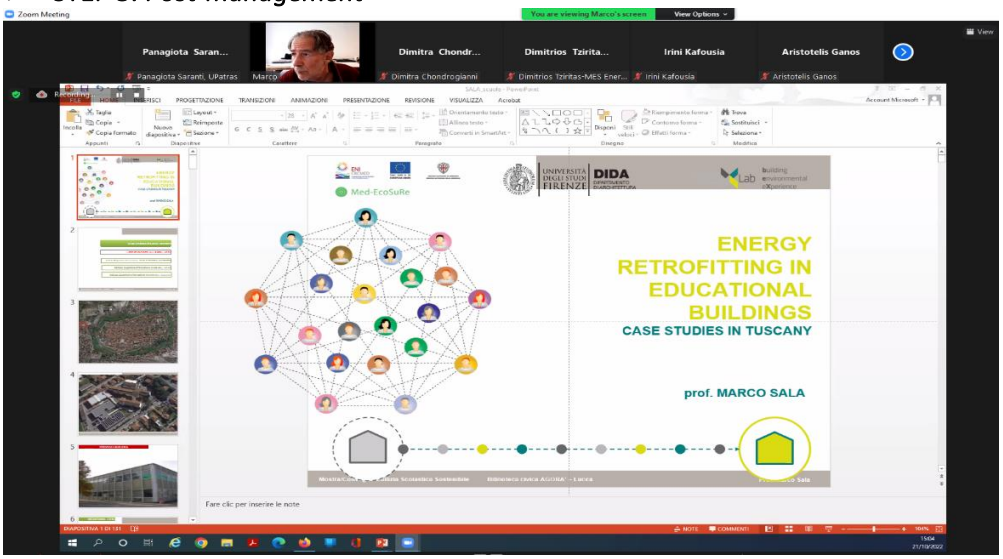
- *Tool of retrofit solutions*
- *Living Lab establishment*
  - *Toolkit presentation the best Path: BIM methodology*



4.2.8 Session 8: Training on Med-EcoSuRe project outcomes

Date: 21 October 2022

- *Tool of retrofit solutions*
- *Living Lab establishment*
  - *Focus: Simulation and evaluation of energy rehabilitation scenarios in a real case study application (provided by beXLab)*
  - *STEP 4. Intervention*
  - *STEP 5. Post-management*



4.2.9 Session 9: Training on Med-EcoSuRe project outcomes

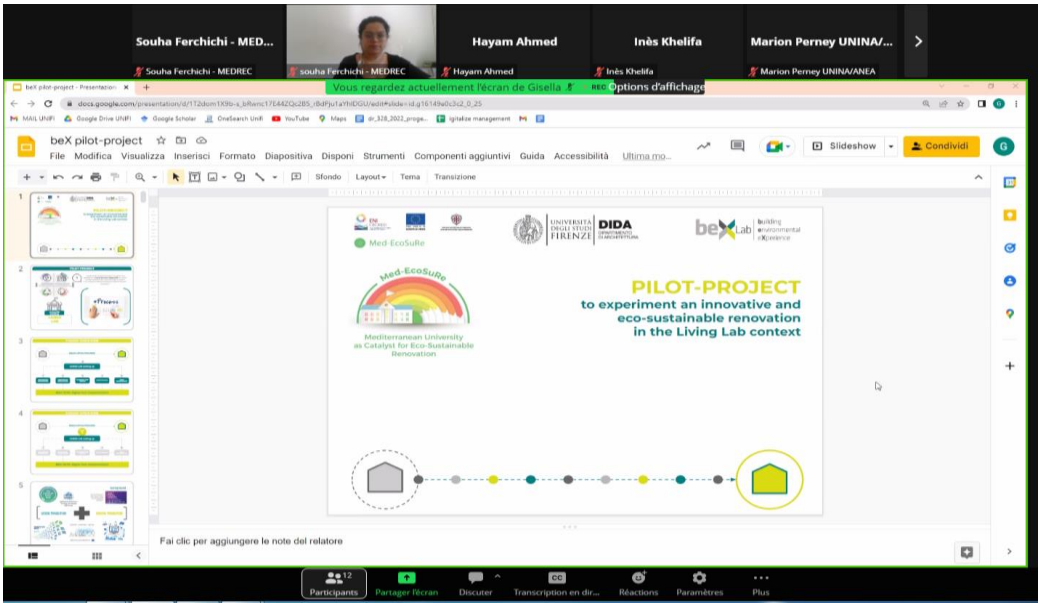
Date: 25 October 2022

- *MED-ECOSURE online Platform*

4.2.10 Session 10: Training on Med-EcoSuRe project outcomes

Date: 26 October 2022

- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - *Pilot project: to experiment an innovative and eco-sustainable renovation in the Living Lab context*



4.2.11 Session 11: Training on Med-EcoSuRe project outcomes

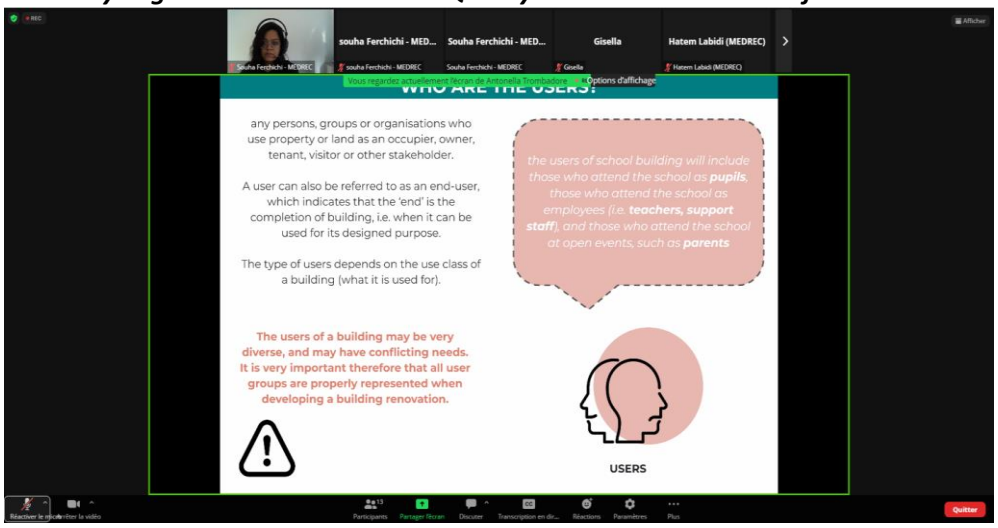
Date: 28 October 2022

- *Tool of retrofit solutions*
- *Living Lab establishment*
  - *Stakeholders engagement for innovation and eco-sustainable renovation process of public buildings*

4.2.12 Session 12: Training on Med-EcoSuRe project outcomes

Date: 02 November 2022

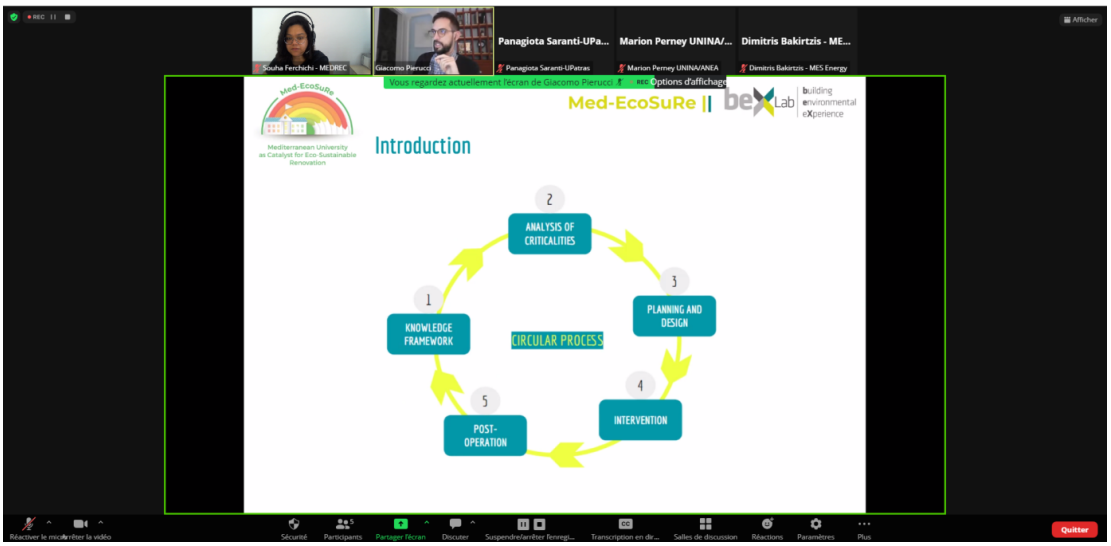
- *Tool of retrofit solutions*
- *Living Lab establishment*
  - ***Users Engagement in Energy Rehabilitations: from knowledge to awareness to pro-active behaviors***
  - ***Analyzing Indoor Environmental Quality to valorise users' comfort***



4.2.13 Session 13: Training on Med-EcoSuRe project outcomes

Date: 03 November 2022

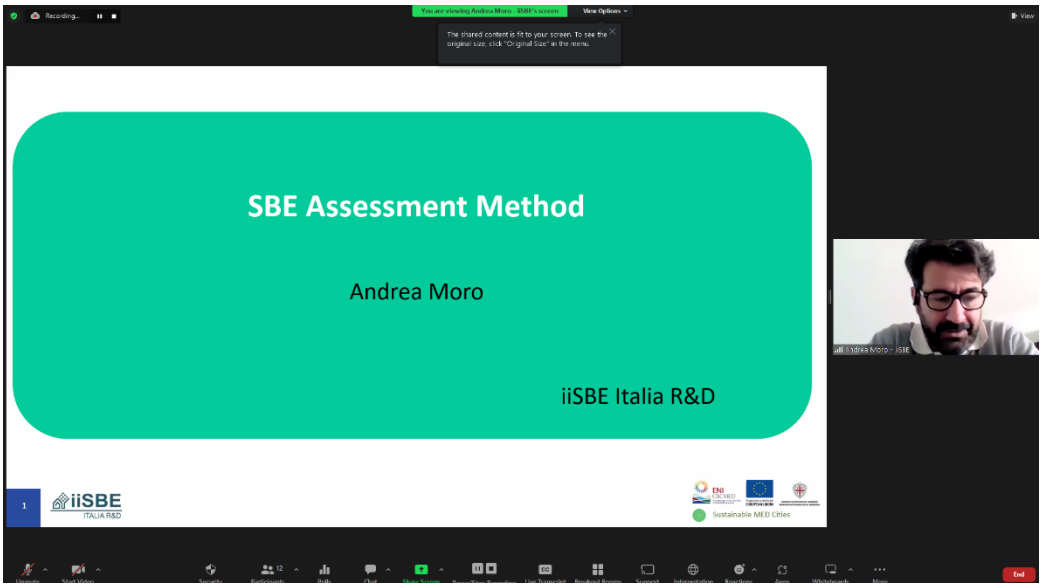
- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - ***Quantitative and Qualitative Monitoring Protocols and Data Management***
  - ***Considering LCA (Life Cycle Analysis) in the renovation process***



4.2.14 Session 14: Training on Sustainable MED Cities project outcomes

Date: 18 November 2022

- *Online platform enabling municipalities to generate contextualised tools for any MED city*
- *Decision-making methodology to be adopted when applying the tools*



4.2.15 Session 15: Training on ESMES & STEPPING projects outcomes

Date: 24 November 2022

- ***ESMES: CONTEST of 34 schools***
- ***STEPPING: MEDITERRANEAN EPC Guidelines***
- ***STEPPING: EPC training package***

4.2.16 Session 16: Training on Med-EcoSuRe project outcomes

Date: 05 December 2022

- *Tool of retrofit solutions*
- *Living Lab establishment*
  - ***Action Plan in a real case study: simulation of the Living Lab setting up and implementation***

4.3 Dissemination of material and participation

The dissemination of training material and the active participation of project partners and external experts are critical aspects of the SEACAP4SDG project. This chapter highlights the efforts made to disseminate information and conduct training sessions on the available outcomes of the Selected Reference Projects (SRPs).

To facilitate easy access to the training material, a repository was created for project partners and external experts. For project partners, the training material is available on Google Drive, ensuring a centralized and easily accessible platform for all partners involved in the SEACAP4SDG project. This repository enables partners to access and reference the training material as needed, supporting their ongoing work and collaboration.

For external experts, the training material is accessible through an ICT platform and a dedicated YouTube channel named SEACAP4SDG. These platforms provide a user-friendly interface for external experts to access the training material at their convenience. By utilizing these channels, SEACAP4SDG aims to reach a wider audience beyond the project partnership, promoting knowledge dissemination and encouraging broader engagement with the SRP outcomes.

The choice of utilizing both an ICT platform and a YouTube channel reflects the project's commitment to leveraging digital platforms to ensure the widest possible dissemination of the training material. This approach recognizes the importance of modern communication channels in reaching a diverse range of stakeholders interested in sustainable energy and climate action planning.

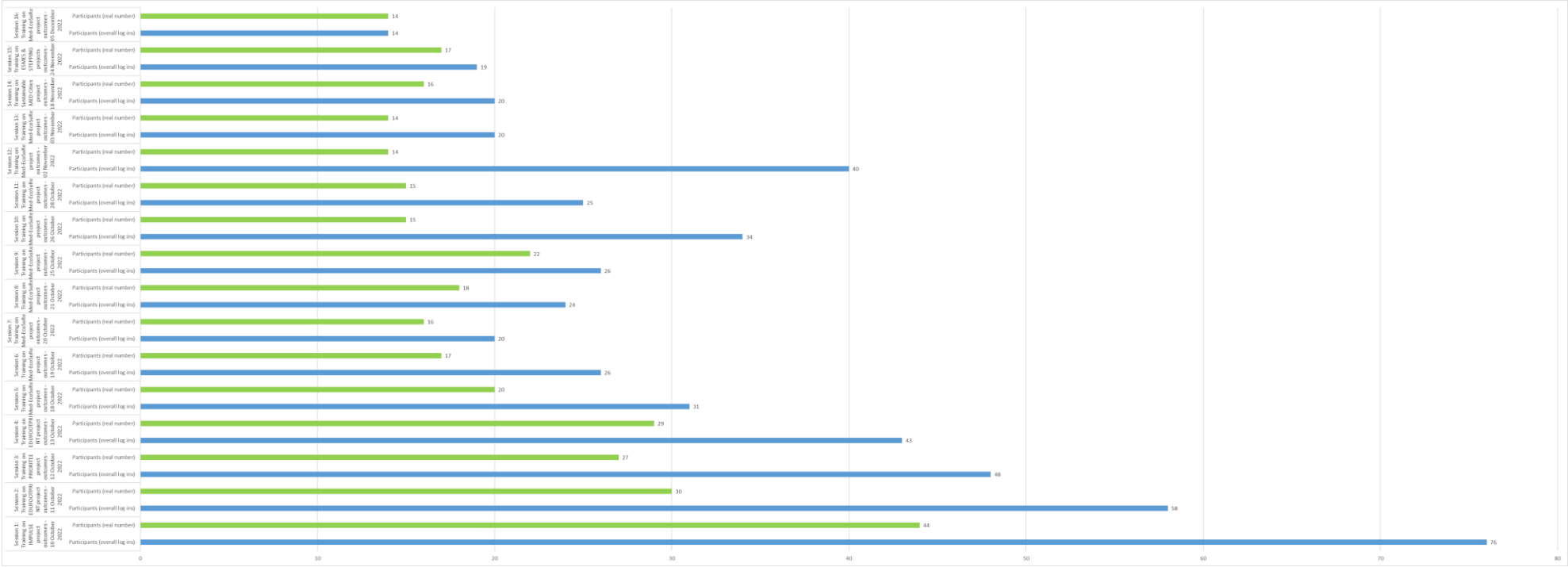
Through the repository of the training material and the use of digital platforms, SEACAP4SDG aims to foster collaboration, knowledge sharing, and engagement among project partners, external experts, and the wider community interested in sustainable energy solutions. These dissemination efforts enable the project to have a lasting impact by equipping stakeholders with the necessary tools and knowledge to drive sustainable energy initiatives in their respective regions.

The following table and graph provide detailed information on the SEACAP 4 SDG SRPs sessions, including the training topics, dates, and the number of participants. The table includes two columns: "Overall Logins" which represents the total number of logins for each session, and "Real Participants" which indicates the actual number of individuals who participated. The total Number of Participants is 328 (Real Participants).

Table: SEACAP 4 SDG SRPs Sessions and Participants

Session	Training Topic	Date	Overall Logins	Real Participants
1	IMPULSE project outcomes	10 October 2022	76	44
2	EDUFOOTPRINT project outcomes	11 October 2022	58	30
3	PRIORITEE project outcomes	12 October 2022	48	27
4	EDUFOOTPRINT project outcomes	13 October 2022	43	29
5	Med-EcoSuRe project outcomes	18 October 2022	31	20
6	Med-EcoSuRe project outcomes	19 October 2022	26	17
7	Med-EcoSuRe project outcomes	20 October 2022	20	16
8	Med-EcoSuRe project outcomes	21 October 2022	24	18
9	Med-EcoSuRe project outcomes	25 October 2022	26	22
10	Med-EcoSuRe project outcomes	26 October 2022	34	15
11	Med-EcoSuRe project outcomes	28 October 2022	25	15
12	Med-EcoSuRe project outcomes	02 November 2022	40	14
13	Med-EcoSuRe project outcomes	03 November 2022	20	14
14	Sustainable MED Cities project outcomes	18 November 2022	20	16
15	ESMES & STEPPING projects outcomes	24 November 2022	19	17
16	Med-EcoSuRe project outcomes	05 December 2022	14	14

Total number of participants: 524 (Overall Logins) / 328 (Real Participants)


Session 1: Training on IMPULSE project outcomes - 10 October 2022
Session 2: Training on EDUFOSTPM WGrant project outcomes - 11 October 2022
Session 3: Training on PROFITTE project outcomes - 12 October 2022
Session 4: Training on EDUFOSTPM WGrant project outcomes - 13 October 2022
Session 5: Training on Med-Ecolife project outcomes - 18 October 2022
Session 6: Training on Med-Ecolife project outcomes - 19 October 2022
Session 7: Training on Med-Ecolife project outcomes - 20 October 2022
Session 8: Training on Med-Ecolife project outcomes - 21 October 2022
Session 9: Training on Med-Ecolife project outcomes - 25 October 2022
Session 10: Training on Med-Ecolife project outcomes - 26 October 2022
Session 11: Training on Med-Ecolife project outcomes - 28 October 2022
Session 12: Training on Med-Ecolife project outcomes - 02 November 2022
Session 13: Training on Med-Ecolife project outcomes - 03 November 2022
Session 14: Training on Sustainable MED Cities project outcomes - 18 November 2022
Session 15: Training on ESMES & STEPPING project outcomes - 24 November 2022
Session 16: Training on Med-Ecolife project outcomes - 05 December 2022
Participants (real number)
Participants (overall log ins)
0
10
20
30
40
50
60
70
80

5 Training of SLIT

5.1 SLIT training scope and members

In line with the establishment of the Living Lab, a comprehensive training program has been designed for the SE(A)CAP Local Implementation Team (SLIT). The SLIT comprises project partners, with at least one member per partner, and engaged associated partners. This chapter provides insights into the training scope and the members involved in the SLIT.

Training Scope: The training program for the SLIT aims to equip stakeholders involved in SE(A)CAP implementation at the local and regional levels with the necessary knowledge and tools. The focus is on enabling cities and municipalities to develop dynamic and realistic action plans that address local-specific challenges within the framework of the Living Lab. These plans are crucial for capitalizing on the outputs and outcomes of the SEACAP4SDG project. It is worth noting that the training is compulsory for the nine cities selected through a call of expression of interest, one from each partner region. By providing essential training, the program ensures that cities and municipalities have a solid foundation for implementing and benefiting from the project's outputs and outcomes.

Training Members: The SEACAP Living Lab consists of two key boards responsible for coordination and management: the Cross-Border Coordination Board and the Local/Operational Board. The

1 ***Cross-Border Coordination Board:*** This board comprises the following members:

- One beneficiary partner member
- One associate partner member
- Four experts identified as members of the Living Lab through an expression of interest process, including two experts from northern Mediterranean countries and two from southern Mediterranean countries. These experts bring their diverse perspectives and expertise to ensure effective cross-border coordination and collaboration within the Living Lab.

2 ***Local/Operational Board:*** At the local and operational level, the Living Lab is managed by various local management boards. These boards consist of the following members:

- One coordinator representing a beneficiary partner member who takes on the responsibility of coordinating the activities within the Living Lab.
- Two to four members in each partner country/region, including external experts, representatives from municipalities, and other relevant stakeholders. This diverse composition ensures local expertise and involvement in the decision-making and implementation processes of the Living Lab.

By having both a Cross-Border Coordination Board and Local/Operational Boards, the Living Lab framework enables effective governance, coordination, and local engagement in driving sustainable energy and climate action planning. The involvement of a wide range of stakeholders ensures a holistic and inclusive approach to SE(A)CAP implementation within the Living Lab context.

5.2 SLIT Approach

SEACAP LL phases	Start	End	Deliverable
Phase 1 - Connect and self-assessment	1/7/2022	31/12/2022	Structure and of LL defined and members identified Organization chart External stakeholders identified
Phase 2.a - Educate and plan **Training on SRP outcomes**	10/10/2022	19/12/2022	Project partners + external experts trained on SRP outcomes
Phase 2.b - Educate and plan **Training on SLL methodologies**	9/1/2022	3/2/2023	SLIT + external experts trained on SLL methodologies (cross-border + local trainings)
Phase 3.a – **Implement Level 1 demonstrator (WP5)**	9/1/2023	30/3/2023	Energy Efficiency Plan
Phase 3.b – **Implement Level 2 demonstrator (WP5)**	1/3/2023	31/5/2023	Roadmaps of cost-effective technologies for the selected buildings

Phase 4.a – Improve and Evaluate **Feedbacks on the adoption of SRP outcomes and of selected EE solutions;** **Innovative ideas to improve the identified solutions**	1/3/2023	30/4/2023	Reports on the adoption of SRP outcomes and of selected EE/RE solutions; to be integrated in the Energy Efficiency mix plan
Phase 4.b – Improve and Evaluate **Evaluation of the SLL process**	1/6/2023	30/6/2023	- SLL evaluation report (based on predefined KPIs) - Handbook of LL best practices
Phase 5.a – Dissemination	1/4/2022	31/09/2023	Printed and digital communication material
Phase 5.b – Capitalization & mainstreaming (WP6)	1/7/2023	15/9/2023	Adoption of the energy efficiency action plans Capitalization of results for mainstreaming

The objective of this Agenda is to describe the training activity foreseen in the framework of the SEACAP4SDG project on the SEACAP Living Lab methodology.

This training activity is organized to provide the SLIT with steps, topics and materials/tools to foreseen activities of SEACAP 4SDG project in the framework of the Living Lab proposed

The agenda covers all the phases foreseen by the SEACAP 4 SDG project to approach and set-up the Living Lab.

For each phase and each steps, the Agenda defines:

- WHAT: topics
- WHO: responsible of the training/activities
- HOW: typology of training/activities
- TO DELIVER: docs/tools provided by the responsibles to support the activities
- TO GENERATE: docs/tools to generate during the activities as deliverable

PHASE 1: Connect and self-assessment

STEP	WHO	WHAT	HOW	TO DELIVER	TO GENERATE
0. Define SLIT	UPatras and MEDREC	Contact list of SLIT members	Collect data and contacts of the SLIT members	Contact list template	Contact list
1. Define LL leadership	***Cross border Coordination Board*** 1 member from each partner institution + 4 experts to be identified as members of the LL: two from northern Mediterranean countries and two from southern Mediterranean countries; ***Local Coordination Board*** one coordinator and two to four members in each partner country.	Organization chart (hierarchy/structure of the three levels boards); List of contacts (excel file, it is better to use a shareable file in a platform, e.g. Google Drive)	Identify people covering the various roles of the different boards, both locally and at cross border level; Collect data from all the member of the different boards	Organization chart template; Contact list template	Organization chart Contact list

2. Address and identify stakeholders	***Local coordination boards*** (of each local Living Lab); ***Cross border Coordination Board*** (connecting all the Living Labs)	Stakeholders at local and cross-border level	Using contacts from stakeholders participated in the 11 reference projects; Using channels to find people and organizations with positive innovation attitude; Using project website and project promotional material; Using social media; Collect expressions of interest (google form available); Collect stakeholders contacts	Stakeholders Engagement and management template	Stakeholders Engagement and management document (local and cross-border)

3. Define common problem or opportunity, stakeholder self-assessment and connect stakeholders	***Cross border Coordination Board*** ***Local Coordination Board***	Renovation problems; Interaction with stakeholders; Agreements/MoU with stakeholders	Desktop research; Conclusions from previous research; In-site visits; Consultations; Interviews with interested stakeholders; Brainstorming events; self-assessment tool-questionnaire to stakeholders	Stakeholders survey (example); Stakeholders' interaction report (example); Templates of agreements and Mou x country	Stakeholders' survey results; Stakeholders' report; Signed agreements/Mou

Phase 2: Educate and Train

STEPS	WHO	WHAT	HOW	TO DELIVER	TO GENERATE
1. Educate stakeholders	SLIT	Outcomes from previous projects (SRP) for beneficiary municipalities; Agenda of the LL activities to organize to educate the stakeholders (workshops, meetings to train on the SRP outcomes)	Review SRP to select outcomes; Organize workshops/meetings to provide with the SRP materials (EE solutions, funding opportunities and existing policies on the renovation of public buildings)	Report template (elements/sections) on the choice of the outcomes selected and how to use them;	Report on selected outcomes and how to use them;
2. Train stakeholders	SLIT	Training; Report of the training activities (use of methodologies and tools)	Provide on-site local training courses on specific methodologies and tools from SRP	Report template on the training activities to perform (elements/sessions)	Report on the training activities (type of training, materials, etc)

Phase 3: Implement

STEPS	WHO	WHAT	HOW	TO DELIVER	TO GENERATE
1. Implementation of solutions All countries	Local Coord. Board (+ Municipalities and Stakeholders)	Energy efficiency plans on the planning and evaluation of the energy management measures;	Discuss opportunities and barriers in the implementation of the EE solutions; Identify best EE solutions; Provide and share best practices, case studies, tools and solutions to evaluate EE	Energy efficiency plan template	Energy Efficiency Plan
1. Implementation of solutions Southern shore countries	Local Coord. Board (+ Municipalities and Stakeholders)	Roadmaps to implement the most cost-effective technologies for EE and RE in the selected buildings	Support and supervise the co-design of innovative EE solutions on-site	Roadmap template	Roadmap; Single renovation projects

Phase 4: Improve and Evaluate

STEPS	WHO	WHAT	HOW	TO DELIVER	TO GENERATE
1. Generate improvements All countries	Local coordination Board (+ Municipalities and Stakeholders)	Feedbacks on the adoption of SPR outcomes and of selected EE solutions; Innovative ideas to improve the identified solutions;	Ask stakeholders how to improve the SPR outcomes and EE solutions (questionnaire); Stimulate the co-creation of new ideas (workshops, meetings, roundtables, world coffees, think tank approaches, etc…); Recommendations on the use of outcomes and solutions;	Questionnaire template on SRP outcomes and EE solutions	Questionnaires results' report; Agenda of co-creation events; Events report

2. Evaluate used solutions Southern shore countries	Local coordination Board (+ Municipalities and Stakeholders)	Feedbacks on the adoption of SPR outcomes and of selected EE solutions; Innovative ideas to improve the identified solutions	Ask stakeholders how to improve the identified solutions	Questionnaire template SWOT analysis example	Questionnaire results and report SWOT analysis
3. Evaluate SLL process All countries	Local coordination Board (+ Municipalities and Stakeholders)	Feedbacks on the adoption of SPR outcomes and of selected EE solutions;	Ask stakeholders how to improve the SLL process; Question and monitor the stakeholders' involvement and experience	Questionnaire template	Questionnaire results

4. Measure Key Performance Indicators	SLIT	List of KPIs for EE solutions; List of KPIs for SLL process;	Define KPIs to assess and measure solutions and SLL process, according to renovation quality targets (e.g. group of quantitative indicators, architectural quality, EE, env. quality, indoor comfort)	Example of set of indicators and matrix of weights and priorities to evaluate the EE solutions implemented; Example of set of indicators and matrix of weights and priorities to evaluate the SLL process;	Set of indicators/matrix to evaluate the EE solutions implemented and application; Evaluation report on the EE solutions; Set of indicators/matrix to evaluate the SLL process; Evaluation report on the SLL process
5. Summary of results and development of relevant recommendations	SLIT	Guidelines and recommendations	Organize the results of the previous steps, highlighting criticalities and barriers	Report template of the previous activities' results	Report of the previous activities' results

Phase 5: Disseminate and Capitalize

STEPS	WHO	WHAT	HOW	TO DELIVER	TO GENERATE
1. Deploy and communicate SLLs solutions	SLIT	- Communicate and disseminate the results of the LL through the ICT platform, webpage of the project and social media channels - Dissemination material Define the forms of communication e.g: creation of (videos for each local LL pilot, report, papers, booklet, leaflet, brochures…)	Define the forms of communication Communicate and disseminate the results of the LL through the ICT platform, webpage of the project and social media channels	Example of communication materials	Communication materials

5.3 SLIT Training timeframe and implementation

To ensure the effective implementation of SEACAPs through the Living Lab, a series of cross-border training sessions were conducted. These sessions served to provide SLIT members with essential knowledge and skills to develop and implement SEACAPs successfully. The training sessions were held on January 23rd and 26th, 2023 online.

During these cross-border training sessions, SLIT members were provided with comprehensive insights into SEACAP development, the Living Lab approach, stakeholder and citizen engagement strategies, and key performance indicators for measuring the impact of the Living Lab initiatives. The sessions were led by experts from the University of Patras and MEDREC, who brought their expertise in sustainable energy and climate action planning.

- *Session 1: January 23rd, 2023*

- *Session 2: January 26th, 2023*

6 Stakeholders Training- Local Living Labs (Local LL)

6.1 Local LL training scope

Local Living Labs (LLLs) represent a pivotal element within the SEACAP 4 SDG project, specifically geared towards stakeholder training. This component plays a vital role in the effective dissemination of knowledge and the practical implementation of sustainable energy access and climate action plans (SE(A)CAP). This section offers a detailed exploration of this crucial aspect of the project:

Customized Training for Regional Stakeholders: Within the SEACAP 4 SDG project, there is a profound appreciation for the distinctive nature of each partner region. Consequently, the approach to training local stakeholders has been intricately tailored to the unique circumstances, challenges, and opportunities inherent to each geographical context. This bespoke approach ensures the precise alignment of training content with the specific needs of each region.

Online and Physical Training Sessions: Recognizing the imperative for adaptability, the project offers a choice between online and physical training sessions. This flexibility is a response to the dynamic and evolving nature of the global landscape, including the ongoing impact of the COVID-19 pandemic. Online sessions enhance accessibility and safety, while in-person sessions provide an immersive, hands-on learning experience. This versatile approach caters comprehensively to the diverse preferences and requirements of stakeholders.

Multiple Sessions for Comprehensive Learning: Given the multifaceted nature of SE(A)CAP implementation, the project has opted for multiple training sessions per partner. This strategic choice facilitates a deeper understanding and mastery of SEACAP 4 SDG methodologies and tools. By breaking the training into multiple sessions, stakeholders can progressively absorb information, pose questions, and explore practical applications. This holistic approach empowers stakeholders to actively contribute to the project's objectives.

Participation: To maximize the project's impact, attendance at these training sessions is mandated for stakeholders within their respective regions. This requirement ensures that key stakeholders, including local government bodies, agencies, and community representatives, possess a comprehensive understanding and are actively engaged in SEACAP 4 SDG initiatives. Their active participation is central to the successful execution of SE(A)CAP measures and the attainment of sustainability goals.

Empowering Stakeholders for Sustainable Change: These LLL-stakeholder training sessions go beyond the mere dissemination of knowledge; they serve as catalysts for lasting change. Through education and engagement, stakeholders are equipped to translate their learning into tangible actions within the context of SE(A)CAP. This hands-on approach guarantees that the project's impact transcends theoretical frameworks, resulting in practical, real-world solutions for sustainable energy access and climate action within partner regions.

Subsequent the next section of this report will delve into the summary of Local LL Training in each Partner Countries. Additionally, an individualized report has been meticulously crafted for each country's Local Living Lab (LLL).

6.2 Local LL training in Partner Countries

6.2.1 Local LL in Egypt

The main objective of the SEACAP SDG Living Labs project in Egypt is to integrate uniform and adapted assessment and financing methods to promote sustainable development goals, specifically targeting buildings in the education and health sectors for a smart society.

EGEC (Egyptian for Engineering & Commerce) is the selected external entity for the SEACAP SDG Living Labs project in Egypt. It has been chosen to assist the beneficiary, the Technical School of Alexandria Water Company, in selecting the most suitable toolkits from the SEACAP 4 SDG project for Phases 1 and 2. EGEC is a reputable company that specializes in electrical installation, renewable energy, energy-efficient systems, and industrial control. With over 200 employees, EGEC has established itself as a leader in the field and has a strong presence with branches in Cairo, Borg, and its head office and factory in Alexandria.

One of the key factors contributing to EGEC's expertise and credibility is its approval by The New Renewable Energy Authority (NREA) for solar energy and energy efficiency projects. This accreditation reflects EGEC's adherence to industry standards and its ability to deliver high-quality solutions in the renewable energy sector. Additionally, EGEC serves as an agent and distributor for numerous international electrical products, such as Schnider Electric, SOCOMIC, ABB, Balluff, ENDA, and Optics. This partnership allows EGEC to leverage its extensive network and access advanced equipment and technologies, ensuring that the Technical School of Alexandria Water Company receives top-notch solutions and support.

With EGEC's involvement in the SEACAP SDG Living Labs project, the beneficiary can benefit from their in-depth knowledge and experience in implementing energy-efficient systems. EGEC's specialization in electrical installation and renewable energy aligns perfectly with the goals of the project, ensuring that the Technical School of Alexandria Water Company receives tailored assistance in selecting the most effective toolkits. This collaboration between the external entity and the beneficiary will enable the school to make informed decisions that maximize energy efficiency, reduce environmental impact, and promote sustainable practices.

The first training session took place on December 26, 2022, at the Water Secondary School in Alexandria, Egypt. The training session was organized by the Energy Research Unit at the Arab Academy for Science and Technology (AAST). The participants included three staff members from the Municipality of Water Company, three staff members from the beneficiary water school, and one specialist from the technical group of the external entity, EGEC.

Figure 6 Local LL in Egypt 1st Session

The training session aimed to provide the participants with essential knowledge and skills regarding the implementation of the toolkits, such as EDUFOOTPRINT and IMPULSE, that were selected for the project. By engaging staff members from both the Municipality of Water Company and the beneficiary water school, the training session ensured the development of a shared understanding and expertise among key stakeholders involved in the project. The presence of the specialist from EGEC's technical group added valuable insights and guidance based on their extensive experience in implementing energy-efficient systems.

The second training session was conducted on May 1, 2023, in Alexandria, Egypt. This training session was also organized by the Energy Research Unit at the AAST. The participants included staff members from the Municipality of Water Company, staff members from the beneficiary water school, and specialists from EGEC's technical group. However, the precise location of this training session is not explicitly mentioned.

Figure 7 Local LL in Egypt 2nd Session

The involvement of the Arab Academy for Science and Technology's Energy Research Unit in organizing these training sessions underscores their expertise and commitment to promoting sustainable development practices. The collaboration among the trainers, stakeholders from the Municipality of Water Company, the beneficiary water school, and EGEC's technical group allows for comprehensive knowledge sharing and capacity building, enabling efficient implementation of the selected toolkits within the Secondary Technical School of Alexandria Water Company.

6.2.2 Local LL in Greece

The SEACAP 4 SDG Living Lab in Greece aims to bolster the capabilities of public building owners and managers in implementing energy-efficient practices. It's a collaborative platform that brings together a diverse range of stakeholders, including public building officials, decision-makers, research institutions, universities, technical chambers, innovative companies, and more. This diverse mix ensures a comprehensive approach to energy efficiency and sustainability.

Key objectives of this Living Lab encompass:

- Knowledge Transfer: The LL will facilitate the transfer of valuable knowledge, best practices, and tools from the SEACAP 4 SDG Toolkit, fostering a shared understanding of effective energy efficiency measures.
- Engagement and Exchange: Stakeholders will actively exchange experiences and concerns related to Energy Efficient Public Buildings, promoting open dialogue and peer-to-peer learning.
- Enhanced Cooperation: The LL seeks to establish robust interactions, improve transnational collaboration, and encourage deep networking among participants, enhancing the impact of energy efficiency initiatives in the region.

Participation in the LL offers stakeholders access to state-of-the-art knowledge and tools, opportunities for collaboration, networking, and a chance to contribute to sustainable energy practices. The Living Lab will be a catalyst for positive change in Greece's energy efficiency landscape, benefiting local communities and the broader region. In the context of the SEACAP 4 SDG project, Greece hosted the EE Innovative Solutions Living Lab. This local Living Lab, abbreviated as LL, was conducted in two informative sessions. The inaugural session, titled "Computational Tools for Public Buildings Energy Efficiency Plans," was followed by the second session, themed "Developing Smart Communities for Youth: Sustainability, Innovation, and Transition to Sustainable Energy."

The **first session of the Local Living Lab**- training seminar in Greece was organized by the University of Patras and the Municipality of Aigialeia aimed at capacity building and skills development in building-stock energy management and planning. It took place on February 1, 2023, at the Municipality's premises. The seminar primarily targeted departments relevant to building-stock energy management and planning, decision makers, policy makers, energy responsible individuals, and engineers of technical services.

The training session was jointly conducted by a team of experts hailing from the University of Patras and the esteemed external entity, MES Energy. During this informative session, the University of Patras assumed the responsibility of introducing and elucidating the SEACAP 4 SDG project in its entirety. This encompassed a comprehensive overview of the project's objectives, methodologies, and the fundamental framework that underpinned the concept of Living Labs. Furthermore, the University of Patras provided valuable insights into the intricate Living Labs framework, expounding upon the specific methodologies and processes integral to its successful implementation. This served as a foundational understanding upon which the subsequent training components were built. MES Energy participated as the key rapporteur in a training seminar organized by the University of Patras in collaboration with Municipality of Aigialeia. The training seminar covered various topics related to energy efficiency action plans and the utilization of cutting-edge tools for conducting reliable energy efficiency actions.

Figure 8 Local LL in Greece 1st session

The **second session of the Local Living Lab** conducted in Greece as part of the SEACAP 4 SDG project was under the title of "Developing Smart Communities for Youth: Sustainability, Innovation, and Transition to Sustainable Energy." This initiative sought to create an environment conducive to exploration and discussion around these pivotal themes.

Taking place on the 8th of June 2023, the event was situated at the prominent "Agora Argyri," strategically located in the heart of Patras, Greece. This occasion was thoughtfully integrated into the broader context of the "GreenBuilding Open Day," project operating within the framework of the ENI CBC Med Programme, amplifying its significance and reach.

Figure 9 Local LL in Greece 2nd session

The primary objective of this Local Living Lab was to facilitate an informed discourse and exchange of ideas on topics related to smart communities, sustainability, innovation, and the transition to sustainable energy. It served as a platform for meaningful engagement with the local community, stakeholders, and experts interested in sustainable energy action plans, energy upgrades, and related domains. The event served as an engaging forum where attendees from diverse backgrounds contributed their perspectives, initiatives, and ideas, fostering an environment of collaborative thinking and knowledge sharing.

6.2.3 Local LL in Italy

The main objectives of the Napoli SEACAP Living Lab are to integrate relevant tools proposed by the SEACAP4SDG project into the current Napoli SEAP (Sustainable Energy Action Plan) and to develop integrated strategies for achieving climate change mitigation, adaptation, environmental quality, and social equity targets set by international agendas. The critical aspect of workshops and events organized by the Living Lab is to create pathways and provide simple tools for stakeholder workshops. These workshops aim to simplify scientific content, gather feedback, and facilitate exchanges and interaction among stakeholders.

The Napoli SEACAP Living Lab action plan includes objectives such as assessing the energy consumption and characteristics of public buildings, identifying priority actions, developing energy modeling for sample buildings, and integrating the Living Lab tools into SECAP implementation. The Living Lab will also focus on schools and sports facilities for adaptation and mitigation initiatives. The plan involves improving the public building energy cadaster, integrating it into the Napoli SECAP GIS database, and identifying sample buildings for testing SEACAP4SDG tools. Stakeholders have expressed interest in assessment tools for public building energy renovation, financial scheme evaluation, sustainable building and neighborhood assessment, and behavioral change.

The training to the Napoli stakeholders, organized by ANEA and UNINA-PLINIVS, was delivered by Mattia Federico Leone and Marion Perney, with the support of experts from the Interdepartmental Research Center Laboratory of Urban and Regional Planning "Raffaele d'Ambrosio" (LUPT) of the University of Napoli "Federico II" (UNINA), Nicola Addabbo and Giovanni Nocerino. In order to guide the Municipality of NAPOLI in the use of the tools previously identified during the training session, ANEA and LUPT-UNINA, in collaboration with the representatives of the Municipality, were able to identify the TOOLKIT tools to be used to develop a harmonised ecosystem of tools supporting the implementation of the SECAP of Napoli.

Figure 10 Local LL in Italy 1st Session

On 27 February 2023, the training for the municipality of Napoli stared by the presentation of SECAP Napoli legacy tools Integrating SEACAP4SDG tools (tools interface parameters and process workflow from preliminary assessment to planning, design and implementation). The second part of the workshop was dedicated to a discussion on how to apply the tools to the Neapolitan public building stock and how to use the current data held by the technical. 1 representative of ANEA, 4 representative of the municipality of

Napoli (Staff from Municipality of Napoli, Councillor for the Environment, Energy manager, technical group), and 3 expert's form LUPT were presents. This event took place on the municipality of Napoli' premises.

On March 31st the training took place during the EnergyMed exhibition and focused on the evaluation tools for public building energy renovation, such as KPIs-processor's GIS plug-in and financial scheme evaluation tool from IMPULSE, for direct integration into a GIS environment and structured methodology to improve data collection for public building energy and environmental monitoring, renovation planning, and potential financing. 3 representative of ANEA, 2 representative of the municipality of Napoli, and 3 expert's form LUPT were presents and 3 representants of the University of Campania.

Figure 11 Local LL in Italy 2nd Session

On April 26th the Co-design Tools were presented, such as the MCBLL - Mediterranean Cross-Border Living Lab (MED-ECOSURE), given the potential to achieve through living labs a behavioural change on energy use that can in turn reduce energy consumption for the residential sector as well (students as "environmental mentors" for their families). Furthermore, the SBT-Sustainable Building Tool and SNT-Sustainable Neighbourhood Tool (CESBA MED S) was selected for the quality of the indicators identified, related to both climate mitigation and adaptation, and the direct link to the evaluation process of retrofit strategies and scenarios, based on both quantitative and qualitative aspects. This test project would be the ambassador before extending the action to other public buildings. 1 representative of ANEA, 3 representative of the municipality of Napoli, and 2 expert's form LUPT were present.

Figure 12 Local LL in Italy 3rd Session

Overall, the Napoli SEACAP Living Lab aims to develop integrated strategies, promote coherence, and engage stakeholders to address climate change challenges in Napoli.

6.2.4 Local LL in Jordan

The Living Lab objective in Jordan is to bridge the gap between the community and its ability to address climate change. The focus is on raising awareness among the public regarding their unconscious activities that contribute to CO2 emissions. Additionally, the Living Lab aims to make energy efficiency measures more accessible to individuals, addressing the environmental challenges discussed during the training sessions. By involving stakeholders from diverse backgrounds, the Living Lab aims to incorporate their expertise, experience, and potential impact on the project's development and implementation. The primary goal is to improve energy efficiency in public schools and buildings while also developing a green procurement manual for the Aqaba Special Economic Zone Authority (ASEZA) to consider environmental factors in future purchases. Overall, the Living Lab seeks to promote sustainable and energy-efficient practices that contribute to emission reduction and cost savings.

To achieve its objective, the Living Lab in Jordan has outlined an action plan. The key activities include conducting trainings to assess stakeholders' knowledge levels, providing additional training sessions to enhance understanding, and dividing the training sessions into practical and theoretical components. The implementation of the selected PrioritEE tools and methodologies is a core component of the training sessions. Site visits are also planned during the implementation phase to keep stakeholders engaged and interested in monitoring the project's progress. Maintaining relations with Living Lab members is crucial, and ongoing engagement through seminars, webinars, and trainings is planned to encourage their participation in future projects. By pursuing these activities, the Jordan Living Lab aims to effectively educate and train stakeholders, implement energy efficiency measures, and foster collaboration and knowledge exchange for sustainable practices.

The role of the National Energy Research Center (NERC) in the SEACAP Living Lab in Jordan is that of a local coordinator. NERC, which is a part of the Royal Scientific Society (RSS), is responsible for initiating and implementing the SEACAP 4 SDG project in Jordan. NERC's expertise lies in promoting energy efficiency and conservation practices in Jordan and the Middle East countries. They have extensive experience in conducting research, development, and training in the fields of renewable energy, raising energy use standards, and promoting renewable energy utilization in the country. NERC has also been involved in EU programs, developing energy efficiency technologies, and providing services such as feasibility studies, energy audits, and performance measurements for public and private sector clients. Their involvement in the SEACAP Living Lab in Jordan ensures expertise and guidance in energy-related activities and initiatives.

The training activities conducted as part of the Living Lab initiative were aimed at educating and training stakeholders on the utilization of the selected tools and methodologies, specifically the PrioritEE Tools and Methodologies. The training sessions were organized by Ecosol, the local expert, and RSS, the project coordinator, in collaboration with the Aqaba Special Economic Zone Authority (ASEZA). These sessions consisted of online meetings and workshops, which were attended by key stakeholders from ASEZA, the Ministry of Education, and NEPCO (National Electric Power Company).

During the online meetings, Ecosol and RSS engaged with ASEZA to evaluate the effectiveness of the SEACAP project tools, specifically the PrioritEE Tools and Methodologies. They gathered valuable insights and

perspectives from the institutional decision-makers at ASEZA to enhance the implementation of SEACAP projects.

Figure 13 Local LL in Jordan 1st and 2nd Session

In parallel, the workshops focused on training participants on the Living Lab methodology and the selected PrioritEE Tools and Methodologies. Ecosol developed new training material utilizing the SEACAP 4 SDG materials to educate the Jordan Living Lab members. The training sessions that took place on 12 and 13 March 2023, aimed to equip the stakeholders with the necessary skills and knowledge to effectively utilize the PrioritEE Decision Support (DS) Tool, Repository of Good Practices Methodology, and How to Briefs Methodology.

Figure 14 Local LL in Jordan 1st and 2nd Session

By the end of the training sessions, the stakeholders demonstrated a strong interest in decision-making support tools, reflecting the success of the training in equipping them with the necessary skills to utilize the PrioritEE Tools and Methodologies. The training proved to be instrumental in enhancing the stakeholders' comprehension and preparedness to drive innovation and address energy efficiency challenges effectively.

6.2.5 Local LL in Lebanon

The local living lab in Lebanon aims at increasing awareness and developing capacity building skills with regard to energy efficiency (EE) and renewable energy (RE), to help increase the country's energy security and to reach Lebanon's targets in energy efficiency and renewable energy as well as reduce energy consumption and GHG emissions.

The main aim of the living lab is to close the gap between the citizens and their inability to act upon climate change. This definition is broad but in a smaller perspective, it is to help people become more aware of the activities they might do without noticing, that could be a reason behind releasing more CO2 into the atmosphere. It also aims to make energy efficiency measures more available to the citizens to help mitigate the issues discussed in the training. The living lab aimed at introducing the attendees to the idea behind the sustainable energy access and climate action plan. The living lab training also targeted the importance of the local living lab and the engagement of stakeholders.

The first training was organized by the LCEC and was held on Friday 17 February 2023. The training was conducted online, and it is planned to have another training or another informative session in parallel with the implementation of EE and RE measures in the municipality. The total number of stakeholders attended the training was 25; mainly they were undergrad engineering students and masters 'students. They participants include staff from the Municipality of Jdeideh El Chouf, representatives from the Ministry of Energy and Water (AP), as well as engineering and renewable energy master's students from both the Lebanese University and the Holy Spirit University of Kaslik. They all share the same interest since they major in Energy or Energy related degrees.

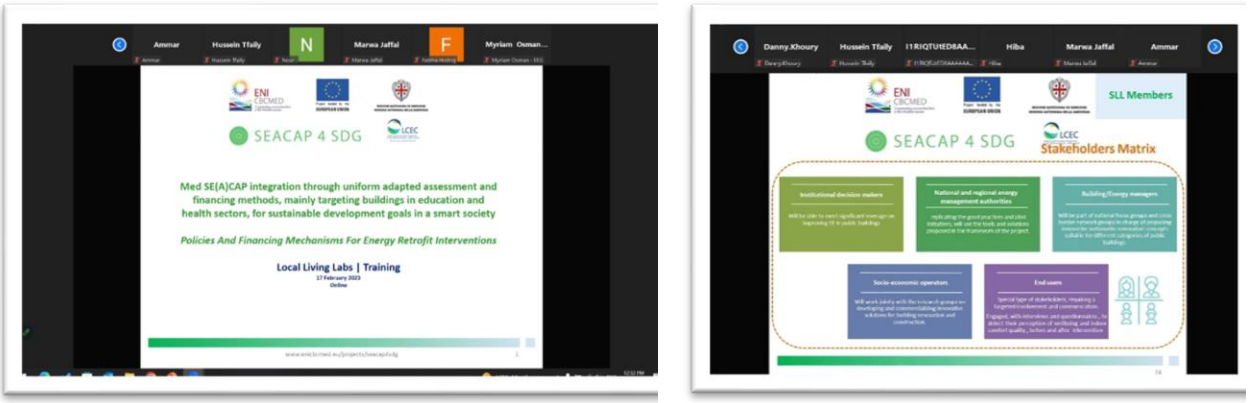


Figure 15 Local LL in Lebanon

The LL coordinators team explained the support mechanism proposed within the SEACAP 4 SDG project. The team as well explained what a SEACAP is, its importance and how it is suggested to implement it. The external expert had a session to deliver their presentation, which was entitled "Tool Selection and Implementation". They shared an update of the SEACAP for Jdeidet El Chouf Municipality, explained the Toolkits selected and how to move on from the toolkit to implementation. Stakeholders were introduced to several methods to implement EE measures, from simple nudging techniques to actual retrofit solutions such as:Air tightening, Ventilation and night cooling, Shading, Energy efficient glazing, Wall insulation, Roof insulation, Avoiding thermal bridges, Heat Pumps, Evaporative cooling, LED lighting/smart lighting, Efficient split units,

Traditional architecture (principles), District Cooling Network / SWAC, PCM heat / cold storage, Aquifer / ground water heating / cooling. The material used was:

- **SEACAP 4 SDG Support Mechanism**: which was a general overview of the project, explaining the target of the project and the process flow.
- **Introduction to SEACAPs**: which was the presentation delivered in the cross border living lab. It was important to include this section in the training for several purposes. Mainly due to unawareness towards the word SEACAP, not all citizen/ potential stakeholders are familiar with this term and that needs to be addressed. In addition, to share a clear image about the process of a sustainable energy access and climate action plan from the initiation to the monitoring phase.
- **SEACAP Living lab:** this session included the definition and concept of a living lab, a living lab approach and methodology, setting up a living lab in Lebanon and solutions on how to improve in terms of energy efficiency.
- **Involvement and engagement of stakeholders and citizens through LL:** where the living lab approach was explained from identifying stakeholders to educating stakeholders to engaging stakeholders.
- **Tool Selection and Implementation:** where the External Expert gave an intro about the municipality in terms of energy consumption and CO2 emissions, explained the toolkits selected and suggested some EE and RE measures.
- **Financing Options**: this session Dr. Sorina explained the barriers on financing in Lebanon due to the energy and financial crisis; she also introduces some financing mechanism for projects that were already done and methods to finance future projects.

6.2.6 Local LL in Spain

For the Spanish case, the SEACAP Living Labs in Spain consists of a set of sessions in which to share among the different involved key stakeholders of the implemented support mechanism of the SEACAP4SDG project.

Thus, from the 2 selected municipalities, Sax in the region of Valencia and Lloret de Mar in Catalonia, it was proposed that their representative technicians, the selected external entities that offer their support for the definition of the new SEACAPs, and other key stakeholders (as supralocal entities), could join a set of sessions, in which to focus on several topics of their related processes. Specifically, the sessions were planned to share scenarios descriptions, key stakeholders definition, main SRP outcomes used during the new plans developments, or the resulting actions.

Traditionally, SECAPs have been energy plans based on simplified templates, whose main objective was to establish orders of magnitude, rough dynamics, and represent a positioning or political will. However, at present it is necessary to design and implement robust and reliable plans, which allow the design and evaluation of specific strategies that allow achieving the decarbonization objectives set at the local level.

In this context, one of the main challenges is how information and data are managed, and what specific proposals can be sufficiently dystopian and at the same time reasonably applicable to achieve the objectives with the most efficient use of resources. In this way, sharing knowledge and experiences, and assessing the use of tools (in our case, SPR outcomes), allows us to compare this efficiency, by and from the point of view of the different key stakeholders. This has been the main driver for establishing the scope of the SEACAP Living Lab in Spain.

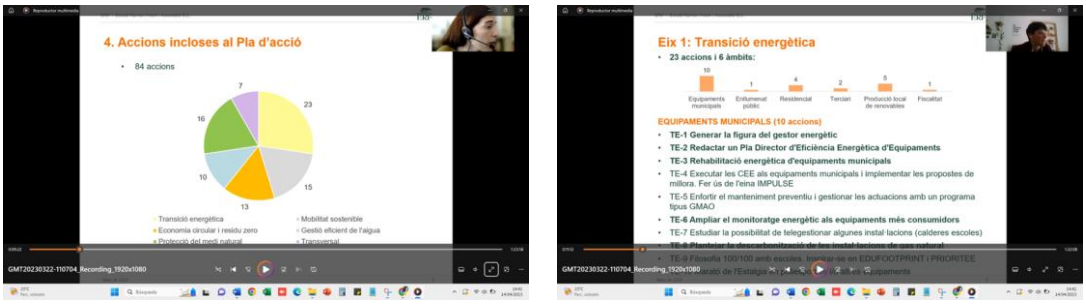


Figure 16 Local LL in Spain 1st and 2nd Session

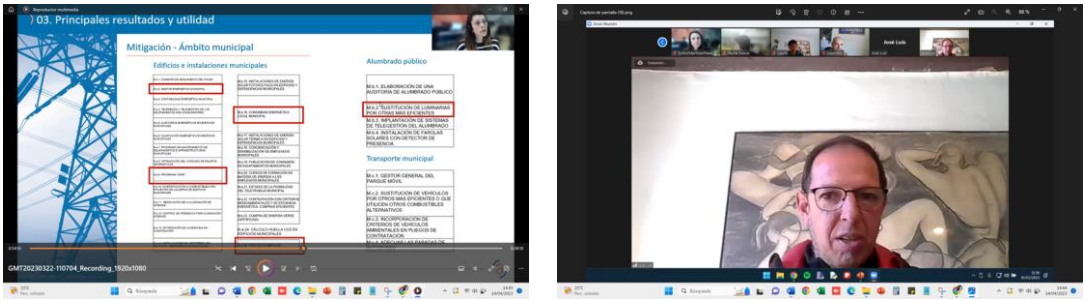


Figure 17 Local LL in Spain 1st and 2nd Session

After the 2 implemented sessions, various benefits arise for stakeholders participating in the SEACAP LL in Spain which, beyond the opinions considered in the satisfaction questionnaires and the success introduced KPIs, could be synthesised in a general feeling of satisfaction in having participated in the sessions, increasing in most cases the specific knowledge and skills of their participants.

The way to proceed has been that both partners, IREC and IVE, have agreed on a common strategy and approach, and then each one of them has directed the local stakeholders (from Catalonia and Valencia), until taking them to the joint sessions. That means, IREC and IVE have agreed on the LL topics and formats, including the number of sessions, duration or dates. From there, both institutions have contacted their local key stakeholders (i.e. from the selected municipalities to the external support entities), and propose and guide them to the structured LLs. The sessions have been mainly conducted by IREC, while IVE has been in charge of collecting the maximum amount of information (beyond the fact that the sessions have been recorded for a purely internal purpose to support further reporting). After the sessions, both entities contacted all the participants to ask for feedback and jointly report on the overall process as using the provided templates.

6.2.7 Local LL in Tunisia

By implementing Eco-City TUN (Innovative eco-sustainable process for Sustainable Tunisian cities) LL, the Tunisian project team aimed at improving the technical capacities of the public building managers of the municipality of Bizerte, by developing and enhancing energy efficiency actions through tools identified within the SEACAP 4 SDG project. The Eco-City TUN LL involves various stakeholders such as the building owner, the municipality of Bizerte represented by its agents, decision-makers, and policymakers who are partly the municipal council and also the National Heritage Institute, considering that the building is a heritage site. The project team involved also universities and research institutions within the Living Lab, such as the National School of Architecture and Urban Planning (ENAU), the National Engineering School of Bizerte (ENIB), as well as research centres and startups.

The objective is primarily the transfer of knowledge (good practices/tools methodologies) identified in the SEACAP 4 SDG Toolkit, the exchange of experiences on management and energy efficiency issues, and the establishment of a network strengthening transnational cooperation.

At a local level, this knowledge was transferred in form of a training that was organized on the 14th and 15th of February 2023 at the premises of Bizerte municipality. The training was delivered to the members of the Local Living Lab established in Tunisia and gathered around 35 participants including staff of the Municipality of Bizerte, students from the National Engineering School of Bizerte and the National School of Architecture and Urbanism. During the first day, the most relevant tools (i.e. PrioritEE, IMPULSE and Med-EcoSuRE) were presented to the living lab stakeholders present. The second day was dedicated to a detailed step-by-step training focusing on the use of the “decision aid tool for optimal renovation measures” of Med-EcoSuRe project.

Figure 18 Local training in Tunisia on “LL methodology and SRPs outcomes”

Apart from the tools and methodologies used, the project team in Tunisia organized several meetings and workshops with the participation of the stakeholders, to ensure an efficient implementation of the planned activities.

For instance, a three-day event was held at ENAU on the 10-11-12 May 2023, with the participation of students, teachers and municipal engineers and technicians from several Tunisian municipalities. This workshop was part of a challenge launched by FNCT, Tunisian partner of SOLE project, to propose innovative and cost-effective renovation solutions for public buildings in Tunisia, in 48 hours and specifically for the building of Bizerte municipality.

The group of experts in Tunisia will take into consideration this energy renovation package, as well as the proposal of the other 2nd and 3rd winning groups, while proposing the measures for the pilot building of Bizerte.

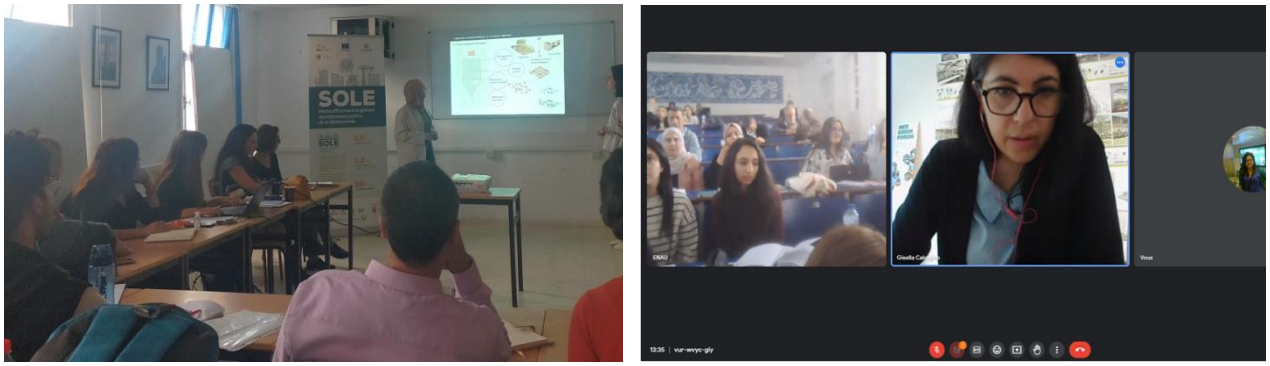


Figure 19: Challenge for innovative and cost-effective renovation solutions for public buildings in Tunisia

Besides, on the 8th of June 2023, a co-creation workshop on “Building energy renovation measures implementation based on a Living Lab approach”, was hosted by the Municipality of Bizerte.

The workshop gathered the stakeholders already involved as well as the new ones in Tunisia to present the methodology proposed for the creation and implementation of a Living Laboratory and to discuss solutions for planning energy management measures proposed to the municipality of Bizerte.

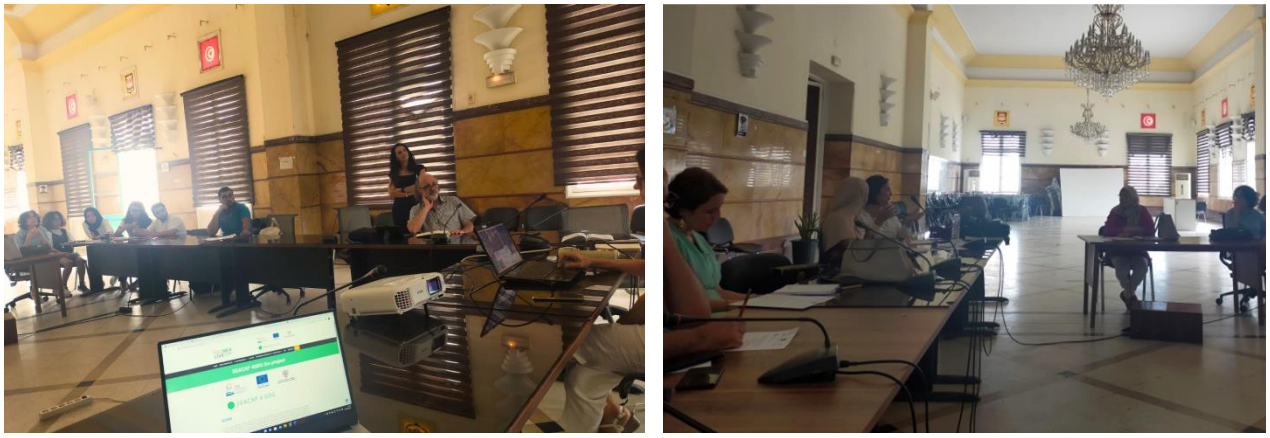


Figure 20: Workshop on “Building energy renovation measures implementation based on a Living Lab approach”

6.3 Local Living Lab summary and evaluation

In the context of the SEACAP 4 SDG (Sustainable Energy Access and Climate Action Plans for Sustainable Development Goals) project, Local Living Labs (Local LLs) have been established in various partner countries. These Local LLs serve as essential components for stakeholder training and the practical implementation of sustainable energy access and climate action plans. Each Local LL is tailored to the unique circumstances and objectives of its respective region, addressing specific sustainability and energy-related challenges. Below is a summary table that provides an overview of the Local LLs in each participating country, including their names, training dates, primary focus areas, and key stakeholders involved.

Table 1 Summary of SEACAP 4 SDG Local Living Labs

Country	Local LL Name	Training Dates	Focus	Key Stakeholders
Egypt	Living Lab in Egypt	1st Session: December 26, 2022 2nd Session: May 1, 2023	Sustainable development and Energy efficiency in education and health	Alexandria Water Company, Water Secondary Technical School of Alexandria Water Company, EGEC.
Greece	EE Innovative Solutions Living Lab	1st Session: February 1, 2023 2nd Session: June 8, 2023	Energy-efficient public buildings and sustainable energy practices	Municipality of Aigialeia, public building officials and staff, decision-makers, research institutions, universities (students/researchers and professors), technical chambers.
Italy	Napoli SEACAP Living Lab	1st Session: February 27, 2023 2nd Session: March 31, 2023 3rd Session: April 26, 2023	Climate change mitigation and adaptation	Municipality of Napoli (Staff from Municipality of Napoli, Councillor for the Environment, Energy manager, technical group), University of Campania
Jordan	Jordan Local LL	1st Session: March 12, 2023 2nd Session: March 13, 2023	Awareness of CO2 emissions and EE measures	Aqaba Special Economic Zone Authority (ASEZA), stakeholders from the Ministry of Education, and NEPCO (National Electric Power Company).
Lebanon	Local LL in Lebanon	1st Session: Feb 17, 2023	Energy efficiency and renewable energy	Municipality of Jdeideh El Chouf, MoEW, representatives from the Ministry of Energy and Water (AP), Engineering and renewable energy master's students from the Lebanese University and the Holy Spirit University of Kaslik
Spain	Spanish Living Lab	2 Sessions in March-April 2023	Knowledge sharing and decarbonization focusing on Energy efficiency	Municipality of LLoret de Mar, Municipality of Sax, stakeholders from Provincial energy management authorities and regional energy management authorities

Tunisia	Eco-City TUN LL	1st Session: Feb 14-15, 2023 2nd Session: May 10-11-12 2023 3rd Session: June 8, 2023	Energy efficiency in public buildings	Bizerte Municipality, students from the National Engineering School of Bizerte and the National School of Architecture and Urbanism, municipal engineers and technicians from several Tunisian municipalities

In evaluating the SEACAP 4 SDG Living Lab (LL) across all partner countries, a comprehensive assessment approach has been employed. This approach entails the evaluation of the Living Labs approach within the SEACAP 4 SDG project. To assess the effectiveness of the showcased LL solutions, feedback was solicited from LL participants through a dedicated questionnaire prepared by UPatras. Following the collection of these questionnaires, the responses were thoroughly analyzed. This analysis used both quantitative and qualitative data analysis to gain valuable insights into LL performance. To improve clarity and comprehension, the figures below depict graphical representations of key evaluation questions.

The following figure presents the responses to a specific question related to satisfaction of stakeholders regarding the general organization of the SEACAP 4 SDG Living Lab (LL). Stakeholders were asked to rate their level of satisfaction on a scale ranging from 1 (Not at all Satisfied) to 5 (Very Satisfied). This question aimed to gauge stakeholders' perceptions of various aspects of LL meetings, including the organization, content, relevance of topics, usefulness of topics, speakers' skills, results, and duration. The satisfaction levels are depicted using a color-coded bar chart, with each color corresponding to a different level of agreement.

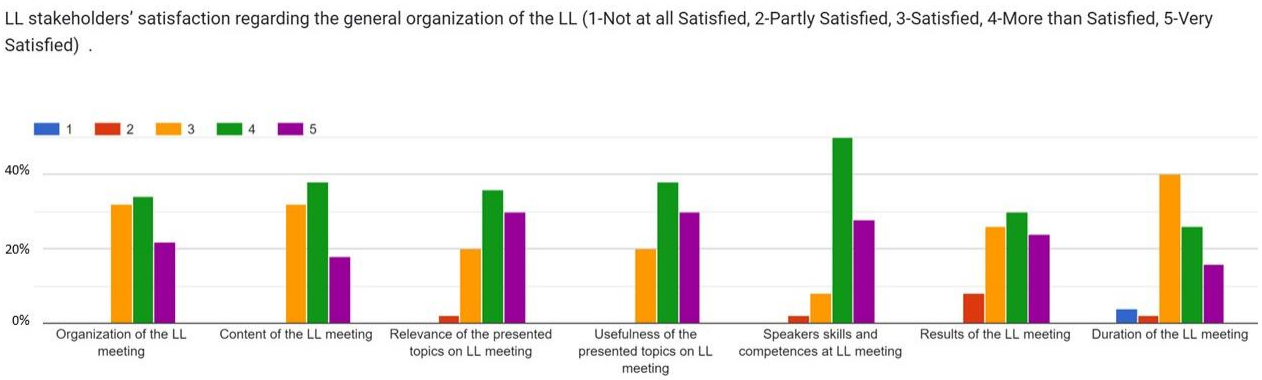


Figure 21 LL stakeholders' satisfaction regarding the general organization of the LL

The findings provide useful information about stakeholders' perspectives on the organization and effectiveness of LL meetings. These insights will help to fine-tune the LL approach to better meet the needs and expectations of its participants. It is worth noting that the majority of stakeholders expressed a high level of satisfaction with both the skills and competences of the speakers at the LL meetings and the usefulness of the topics presented during these meetings. These positive responses highlight the LL's effectiveness in providing valuable content and engaging speakers, which contributes to a successful and impactful collaborative environment.

The following figure illustrates the benefits derived from active participation in the Living Lab (LL). These benefits are based on responses to a questionnaire that used a rating scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

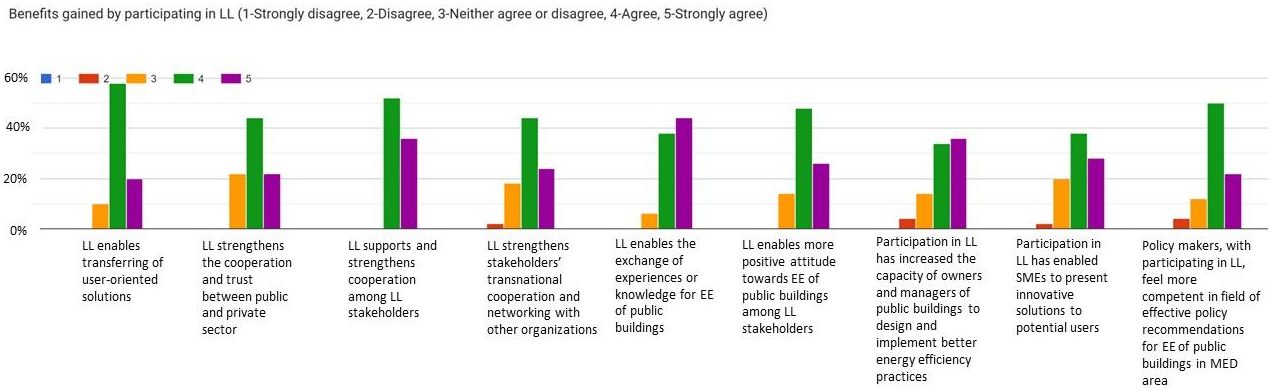


Figure 22 Benefits gained by participating in LL

The bar chart results indicate that a significant majority of participants expressed agreement with most of the provided options, with two aspects garnering the highest level of agreement - "LL enables the exchange of experiences or knowledge for energy efficiency (EE) of public buildings" and "Participation in LL has increased the capacity of owners and managers of public buildings to design and implement better energy efficiency practices." This strong consensus underscores participants' agreement regarding the effectiveness and impact of Living Labs in these specific areas, highlighting the value of knowledge exchange and capacity building for enhancing energy efficiency practices in public buildings through the Living Lab approach.

The stakeholders were asked to gauge their knowledge on various topics related to SEACAP 4 SDG and energy efficiency (EE) policies before and after participating in the Local Living Labs (LL). The responses are represented in Figure 23 and Figure 24. Participants were asked to rate their knowledge on these topics using a scale ranging from "Poor" to "Excellent." The areas of knowledge assessment included EE policies at the EU, national, and local levels for public buildings, available mentoring mechanisms to enhance public building EE, funding opportunities for EE improvements (e.g., renovation), existing best practices identified within SEACAP 4 SDG, and knowledge regarding LL establishment and setup. The figures provide insights into the changes in stakeholders' knowledge levels before and after their engagement in the LL activities.

In Figure 23, which represents stakeholders' knowledge levels before their participation in the Local Living Labs (LL), the highest percentage of responses indicated a "Good" level of understanding for EE policies concerning EU, national, and local levels, as well as available mentoring mechanisms for enhancing the energy efficiency (EE) of public buildings. Conversely, knowledge regarding funding possibilities for EE improvements and existing best practices identified within SEACAP 4 SDG, encompassing tools, methodologies, strategies, etc., aimed at enhancing EE in public buildings, received more responses in the "Fair" category.

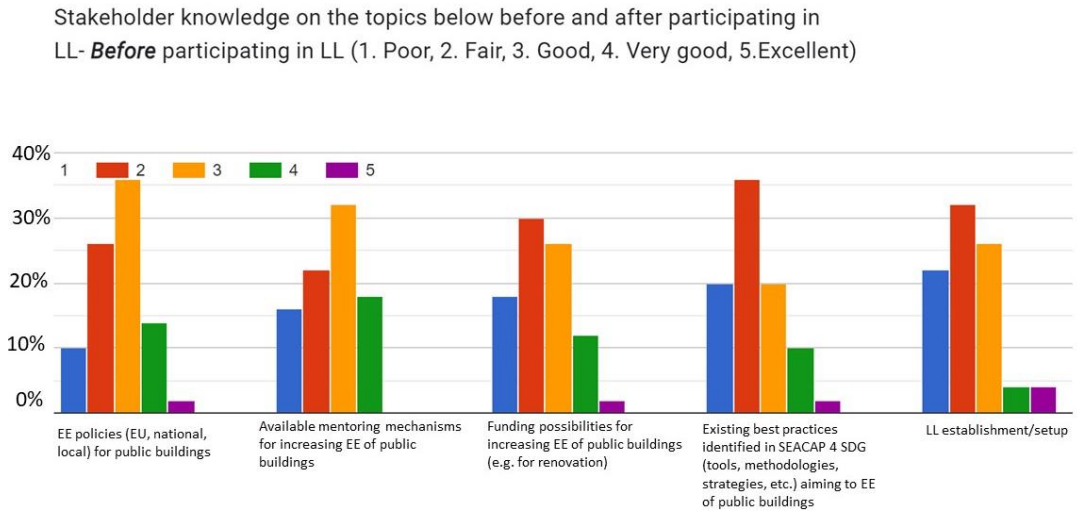


Figure 23 Stakeholder knowledge on the topics of SEACAP 4 SDG & EE before participating in LL

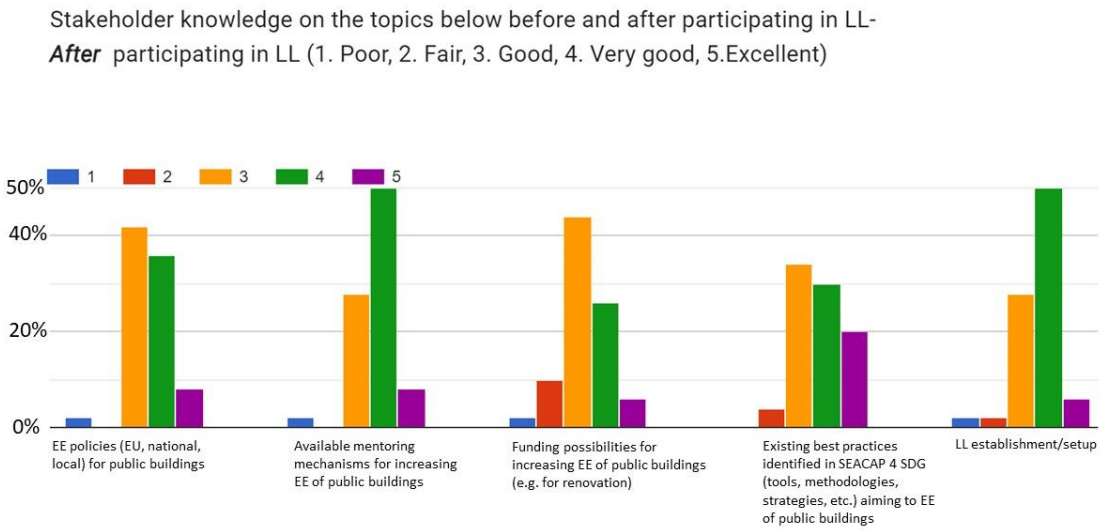


Figure 24 Stakeholder knowledge on the topics of SEACAP 4 SDG & EE after participating in LL

In Figure 24 a noticeable shift in knowledge levels becomes evident. In this chart, after participating in the LLs, stakeholders reported a significant improvement in their understanding of available mentoring mechanisms, which reached a "Very good" level. Similarly, knowledge related to LL establishment/setup showed notable progress, landing in the "Very good" category. Other topics, such as funding possibilities and existing best practices, displayed improvement, primarily in the "Good" category. While knowledge regarding on EE policies also improved, it mainly remained in the "Good" category.

These charts collectively demonstrate that engagement in LL activities has had a positive impact on stakeholders' knowledge. After participating in the LL, stakeholders reported an enhanced understanding of various topics, especially EE policies and LL establishment/setup.

7 Conclusions

This report has provided an extensive overview of the SEACAP 4 SDG Living Lab (SLL) and its multifaceted training program across various partner countries. The SLL, operating within the framework of Living Labs, embodies a collaborative and user-centric approach aimed at promoting cost-effective energy rehabilitations of public buildings in the Mediterranean region. It leverages a network of stakeholders, an ICT platform, and a comprehensive training program to achieve its objectives.

The key findings and conclusions of this report can be categorized as follows:

- Living Labs as Innovation Ecosystems: Living Labs are dynamic innovation ecosystems that foster collaboration among citizens, companies, researchers, and public administrations. They provide real-life contexts for the co-creation, testing, and validation of solutions that address pressing societal challenges. The SEACAP 4 SDG Living Lab embodies these principles, driving innovation in the field of energy refurbishment.
- SEACAP 4 SDG Living Lab Objectives: The primary objective of the SLL is to support the cost-effective energy rehabilitation of public buildings in the Mediterranean region. It does so by harnessing the expertise of various stakeholders to explore innovative socio-economic tools and develop user-oriented solutions for energy refurbishment. The lab's approach emphasizes collaboration, communication, and knowledge sharing.
- Training Levels: The SEACAP 4 SDG Living Lab involves a three-level training program. Level 1 focuses on training local external experts on selected reference projects (SRPs). Level 2 empowers the SEACAP Local Implementation Team (SLIT) to become trainers themselves and contribute to the finalized consolidated methodology. Level 3 comprises training sessions for stakeholders in partner regions, educating and engaging them on SEACAP implementation and the Living Lab methodology.
- Training Content: The training program covers a wide range of topics and reference projects, including IMPULSE, EDUFOOTPRINT, PRIORITEE, Med-EcoSuRe, Sustainable MED Cities, ESMES, and STEPPING. These sessions equip local experts and stakeholders with the knowledge and skills necessary for effective utilization of SRP outcomes and the establishment of sustainable practices.
- Local Living Labs (Local LL): This report provides detailed insights into the Local LL activities in partner countries, including Egypt, Greece, Italy, Jordan, Lebanon, Spain, and Tunisia. These local initiatives focus on raising awareness, building capacity, and engaging stakeholders in energy efficiency and renewable energy efforts. The trainings in each country have played a crucial role in enhancing the knowledge and skills of participants.
- Evaluation: A comprehensive evaluation strategy has been employed to assess the SEACAP 4 SDG Living Lab. Feedback was collected from participants, and a meticulous analysis of responses was conducted. This evaluation process provides valuable insights into LL performance, ensuring continuous improvement.

In conclusion, the SEACAP 4 SDG Living Lab is a pioneering initiative that demonstrates the power of collaboration, co-creation, and knowledge sharing in addressing energy-related challenges in the Mediterranean region. Through its multifaceted training program and engagement of stakeholders, it has laid the foundation for sustainable and innovative practices in energy rehabilitation.

Annex 1 Training of SRPs – Agenda

Monday October 10th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/91559697282?pwd=UEpsYVROZUVJV0I5ZHRhU3p4UVp3UT09	
10.00 – 10.10 CET	**Welcome by UPatras and MEDREC**
10.10 – 11.10 CET	***19M-IMPULSE_Preparatory Set_up*** ***1T-IMPULSE_KPIs Processor*** Ms Katerina Sfakianaki and Ms Eleni Chatzigeorgiou *Centre for Renewable Energy Sources and Saving (CRES)*
11.10 – 11.30 CET	**Questions**
11.30 – 13.00 CET	***17M-IMPULSE_METHODOLOGY_BOOKLET_factsheet.pdf*** Ms Vera Valero Escribano *Instituto Valenciano de la Edificación*
13.00 – 13.30 CET	**Questions / Break**
13.30 – 14.30	***2T-IMPULSE_FINANCIAL_Scheme_factsheet.pdf*** Dr Ilja Drmač *EIHP - Energy Insitute Hrvoje Požar*
14.30 – 15.00 CET	**Questions**

Tuesday October 11th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/95868548923?pwd=TDFaR2hoZElYOTRQbjR1RTNPK01CUT09	
10.00 – 10.10 CET	**Welcome by UPatras and MEDREC**
10.10 – 12.10 CET	***13M-EDUFOOTPRINT_School_Enviromental_Guidelines_factsheet.pdf*** Mr Antonio Zonta *Expert in Energy Efficiency, Sustainability Facility & Energy Management*
12.10 – 12.30 CET	**Questions**
12.30 – 13.30 CET	***8P-EDUFOOTPRINT_Platform_factsheet.pdf*** Mr Antonio Zonta *Expert in Energy Efficiency, Sustainability Facility & Energy Management*
13.30 – 14.00 CET	**Questions**

Wednesday October 12th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/96625093995?pwd=UktBbzdlNnYwQzNpa1FIZlVOeXdGdz09	
10.00 – 10.10 CET	**Welcome by UPatras and MEDREC**
10.10 – 11.10 CET	***14M-PRIORITEE_HOW_to_BRIEFS_factsheet.pdf*** ***18M-PRIORITEE_REPOSITORY_of_GOOD_PRACTICES_factsheet.pdf*** Dr. Carmelina Cosmi and Dr. Monica Salvia *CNR-IMAA, Consiglio Nazionale delle Ricerche, Istituto di Metodologie per l'Analisi Ambientale*
11.10 – 11.30 CET	**Questions**
11.30 – 12.30 CET	***21M-PRIORITÉ_PLUS Training Materials factsheet.pdf*** Dr. Filomena Pietrapertosa *CNR-IMAA, Consiglio Nazionale delle Ricerche, Istituto di Metodologie per l'Analisi Ambientale*
12.30 – 13.00 CET	**Questions**

Thursday October 13th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/95093500214?pwd=Vi9mL2ZNSmI4dDk1VGJHOWdYc29vUT09	
10.00 – 10.10 CET	**Welcome by UPatras and MEDREC**
10.10 – 12.10 CET	***16M-EDUFOOTPRINT_guideline_factsheet.pdf*** Mr Antonio Zonta *Expert in Energy Efficiency, Sustainability Facility & Energy Management*
12.10 – 12.30 CET	**Questions**

Tuesday October 18th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/97129328883?pwd=Z01KQnFVNVcxVkdidEppMjdJUU5pdz09	
15.00 – 15.10 CET	**Welcome by UPatras and MEDREC**
15.10 – 16.30 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***Toolkit presentation (5 steps methodology for the energy rehabilitation of public buildings)*** Prof. Antonella Trombadore *UNIFI-DIDA – University of Florence Department of Architecture*
16.30 - 17.00 CET	**Questions**
17.00 – 17.45 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***STEP 1. Knowledge Framework*** Mrs Gisella Calcagno *UNIFI-DIDA – University of Florence Department of Architecture*
17.45 - 18.30 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***STEP 2. Analysis of Criticalities (criteria and benchmarking)*** Mrs Gisella Calcagno *UNIFI-DIDA – University of Florence Department of Architecture*
18.30 - 19.00 CET	**Questions**

Wednesday October 19th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/95991702766?pwd=TW1xTG4vSGI0MjR3SDdoTFFPOXlodz09	
15.00 – 15.10 CET	**Welcome by UPatras and MEDREC**
15.10 – 16:30 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***STEP 3. Planning and Design (focus on best-practices and abacus)*** Prof. Antonella Trombadore *UNIFI-DIDA – University of Florence Department of Architecture*
16.30 - 17.00 CET	**Questions**
17.00 – 17:45 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***STEP 4. Intervention*** Mr Juan Camilo Olano Salinas *UNIFI-DIDA – University of Florence Department of Architecture*
17.45 - 18.30 – CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***STEP 5. Post-management*** Mrs Gisella Calcagno *UNIFI-DIDA – University of Florence Department of Architecture*
18.30 - 19.00 CET	**Questions**

Thursday October 20th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/93778521068?pwd=ZEt4YzdRSW9oNExBWGlvVjV3cWRYdz09	
15.00 – 15.10 CET	**Welcome by UPatras and MEDREC**
15.10 – 18.30 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***The best-path: BIM methodology*** Mr Juan Camilo Olano *UNIFI-DIDA – University of Florence Department of Architecture*
18.30 - 19.00 CET	**Questions**

Friday October 21st 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/91317305920?pwd=cXZDc2lScnYvd0d2VFhVVzJHNjVWZz09	
15.00 – 15.10 CET	**Welcome by UPatras and MEDREC**
15.10 – 19.00 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***Focus: Simulation and evaluation of energy rehabilitation scenarios in a real case study application (provided by beXLab)*** Prof. Antonella Trombadore, Mrs Gisella Calcagno, Mr Juan Camilo Olano, Prof Debora Giorgi and Mr Giacomo Pierucci *UNIFI-DIDA – University of Florence Department of Architecture*

Tuesday October 25th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/95736337700?pwd=OFNQWktBTW1NL3o4Qk4zVnY3UkRLQT09	
10.00 – 10.10 CET	**Welcome by UPatras and MEDREC**
10.10 – 12.10 CET	***9P-MED-ECOSURE_online_Platform_factsheet.pdf*** Dr Souha Ferchichi and Dr Ines Khalifa *MEDREC - Mediterranean Renewable Energy Centre*
12.10 – 12.30 CET	**Questions**

Wednesday October 26th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/96351671860?pwd=TCttcDFCQ1A1M1Vma1ZJRkE1YzdUUT09	
15.00 – 15.10 CET	**Welcome by UPatras and MEDREC**
15.10 – 16.30 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***Stakeholder mapping and engagement*** Prof Debora Giorgi *UNIFI-DIDA – University of Florence Department of Architecture*
16.30 - 17.00 CET	**Questions**
17.00 – 17.45CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***Living Lab Methodology to innovate the Energy Rehabilitation of public buildings (Physical Place/Digital Twin/Monitoring system/User experience)*** Prof. Antonella Trombadore and Mrs Gisella Calcagno *UNIFI-DIDA – University of Florence Department of Architecture*
17.45 – 18.30 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***How to involve stakeholders in the retrofit process in the 5 steps*** Prof. Antonella Trombadore and Mrs Gisella Calcagno *UNIFI-DIDA – University of Florence Department of Architecture*
18.30 - 19.00 CET	**Questions**

Thursday October 27th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/97565406846?pwd=YkZiQlZCVzNOTjZ2QzFIMXpXencwUT09	
15.00 – 15.10 CET	**Welcome by UPatras and MEDREC**
15.10 – 19.00 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***Focus: Stakeholders' mapping - application in a real case study (to be selected at local level)*** Prof. Antonella Trombadore, Mrs Gisella Calcagno, Mr Juan Camilo Olano, Prof Debora Giorgi and mr Giacomo Pierucci *UNIFI-DIDA – University of Florence Department of Architecture*

Wednesday November 2nd 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/91693296585?pwd=dFdWWG9KdDdOR2JuTnNYRS91VE4rUT09	
15.00 – 15.10 CET	**Welcome by UPatras and MEDREC**
15.10 – 16.30 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***Users Engagement in Energy Rehabilitations: from knowledge to awareness to pro-active behaviors*** Prof. Antonella Trombadore and Mrs Gisella Calcagno *UNIFI-DIDA – University of Florence Department of Architecture*
16.30 - 17.00 CET	**Questions**
17.00 – 18.30 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***Analyzing Indoor Environmental Quality to valorise users' comfort*** Mr Giacomo Pierucci *UNIFI-DIDA – University of Florence Department of Architecture*
18.30 - 19.00 CET	**Questions**

Thursday November 3rd 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/96079938266?pwd=L01uUWpsQnJnU2hJS1RncitiUElPQT09	
10.00 – 10.10 CET	**Welcome by UPatras and MEDREC**
10.10 – 11.00 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***Quantitative and Qualitative Monitoring Protocols and Data Management*** Mr Giacomo Pierucci *UNIFI-DIDA – University of Florence Department of Architecture*
11.00 - 11.15 CET	**Questions**
11.15 – 12.45 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***Considering LCA (Life Cycle Analysis) in the renovation process*** Prof. Riccardo Maria Pulselli *UNIFI-DIDA – University of Florence Department of Architecture*
12.45 - 13.00 CET	**Questions**

Friday November 18th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/95925346853?pwd=aU1FVGw5aWlsUW9tYTlWTzA1YXk2Zz09	
15.00 – 15.10 CET	**Welcome by UPatras and MEDREC**
15.10 – 19.00 CET	***5T-Sustainable MED_Cities_Tools_and_Decision-Making-Methodology_factsheet*** ***-Online platform enabling municipalities to generate contextualised tools for any MED city*** ***- Decision-making methodology to be adopted when applying the tools*** Mr. Andrea Moro *iiSBE Italia R&D*

Thursday November 24th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/96852505376?pwd=MEszZldSV3Q2cG5jYXJUcGlLRnBodz09	
10.00 – 10.10 CET	**Welcome by UPatras and MEDREC**
10.10 – 10.40 CET	***22M-ESMES_CONTEST_34_schools_factsheet.pdf*** Giulia Scichilone, ESMES Project Coordinator *ICU - Institute for University Cooperation*
10.40 – 11.00 CET	**Questions and Break**
11.00 - 11.45 CET	***20M-STEPPING_MEDITERRANEAN_EPC_Guidelines_factsheet.pdf*** ***24E-STEPPING_EPC_training_package_factsheet.pdf*** Silvio De Nigris, *Piemonte Region*
11.45 – 12.00	**Questions**

Monday December 5th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/93761941775?pwd=bFpTaFZIeVUxZmdSQWY4dlAzNURvUT09	
14.00 – 14.10 CET	**Welcome by UPatras and MEDREC**
14.10 – 18.00 CET	***7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf*** ***11M-MED-ECOSURE_MCBLL_factsheet.pdf*** ***Action Plan in a real case study: simulation of the Living Lab setting up and implementation (case study to be selected at local level)***

Annex 2 Training of SRPs – Trainers Information

Project: IMPULSE

IMPULSE: Preparatory Set up and KPIs Processor	Name	**Eleni**
	Surname	**Chatzigeorgiou**
	Nationality	Greek
	Entity	Centre for Renewable Energy Sources and Saving (CRES)
	Entity's country	Greece
	Bio	Eleni is a Civil & Structural Engineer graduated from the National Technical University of Athens, with postgraduate studies in the Environmental Design of Buildings at the University College London. She has over 20 years of experience in the implementation of integrated solutions to improve energy efficiency and sustainability of new and existing buildings. Since 2011 she has been a Consultant at the Division of Development Programs at CRES, having participated in the technical implementation of numerous European co-funded projects in the field of energy efficiency and sustainability in the built environment, focusing on the building sector, providing technical support to public authorities in the development and implementation of energy renovation action plans and projects for their public building stock. Relevant recent projects include IMPULSE and SHERPA (Interreg MED) and ongoing projects Efficient Buildings (Interred MED), ePLANET, re-MODULEES (Horizon 2020) and CARISMED (ENICBC MED).
	Picture	

IMPULSE: Preparatory Set up and KPIs Processor	Name	Katerina
	Surname	Sfakianaki
	Nationality	Greek
	Entity	Centre for Renewable Energy Sources and Saving (CRES)
	Entity's country	Greece
	Bio	Katerina Sfakianaki is a physicist and has a postgraduate Diploma, in environmental physicsfrom the Physics Dept. of the University of Athens. She is currently working as a physicist in theCentre for Renewable Energy Sources and Saving(CRES) and has participated in a variety of nationaland European projects which are contributing toenergy saving in buildings, integration of renewable energies in buildings, indoor air quality, thermal comfort and passive cooling as well as inthe development and implementation of legislative framework adopting EU policy directives. Her technical skills include experimental testing, air tightness, ventilation measurements, and dynamic thermal modelling.
	Picture	

IMPULSE: Financial Scheme	Name	**Ilja**
	Surname	**Drmač**
	Nationality	Croatian
	Entity	Energy Institute HrvojePožar
	Entity's country	Croatia
	Bio	Certified mechanical engineer and energy auditor in the field of buildings and industry with 15 years of experience working on energy efficiency projects and demand side of consumption, experience in energy management in public and private sector (buildings and industry), as well as on other projects directly connected to RES and EE. As a mechanical engineer, from 2002, he started as a project designer in HVAC systems and after 2 yearsstarted a new position as on-site project manager for HVAC in a 200.000 m2 residential/commercial project in Tehran, Iran. The first projects related to energy efficiency were in 2006 when he did his first WTA energy audit for a Special hospital in Novi Marof. The new path in his carrier started in 2002, when he joined UNDP team in Croatia as an energy efficiency expert in buildings. His main responsibilities were related to energy audits, preparation, and evaluation of tendering process for studies and projects, and quality control of performed audits and studies. He also worked as a project manager in the smart metering project and as a lecturer. He started in EI HrvojePožar in 2013 year, since then has worked as a team leader in 5 EU financed projects (H2020, Interreg Central Europe, Mediterranean and cross border cooperation Italy – Croatia) and more than 20 energy efficiency-related projects in Croatia. Last four years has been active in projects related to climate change impact such as SECAP development for cities in Croatia (Cres, Šibenik, Ploče and Mali Lošinj), knowledge transfer to Italian partners that enables them to develop SECAP (LignanoSabbiadoro, Brindisi, and Montemarciano in Italy) and improvements in methodology and calculation methods for Risk and Vulnerability calculation. His experience includes scientific research and expert work in the field of energy efficiency and environmental protection; participation in various projects for the Croatian public sector in the field of energy efficiency, renewables, and environmental protection; project management and coordination in Croatia (Zagreb), Bosnia and Herzegovina (Mostar) and Iran (Tehran).
	Picture	

IMPULSE PLUS Methodology Booklet	Name	**Vera**
	Surname	**Valero Escribano**
	Nationality	Spanish
	Entity	Valencia Institute of Building
	Entity's country	Spain
	Bio	Vera Valero is architect from the Universidad Politècnica de València, and currently Senior researcher at the International R&D&i Department - Valencia Institute of Building (IVE). Expert in construction costs and sustainable products and systems applied to the built environment, including new and existing buildingsas well as urban areas for IVE. Experience in management and development of national and international projects focused on energy efficiency and sustainability in the built environment(Med Programme, H2020 and Climate KIC). She has participated in the development of several publications and technical applications accredited bythe Valencia Regional Government, she is also redactor of different publications about buildings and their environment
	Picture	

Projects: PrioritEE & PrioritEE PLUS

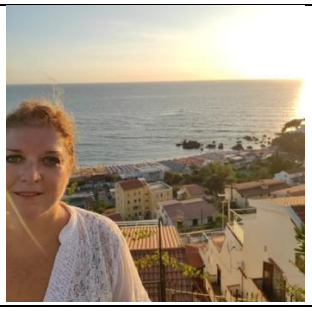
PrioritEE PLUS: Training materials on the PrioritEE PLUS Decision Support Tool (DSToo)	Name	**Filomena**
	Surname	**Pietrapertosa**
	Nationality	Italian
	Entity	National Research Council of Italy – Institute of Methodologies for Environmental Analysis (CNR-IMAA)
	Entity's country	Italy
	Bio	Senior researcher at CNR-IMAA since 2005. Degree in Environmental Engineering - M.Sc. and Ph.D. in Methods and technologies for environmental monitoring. She has a proven experience in supporting local authorities in the decision-making process on energy management as well as in stakeholder awareness-raising strategies to promote conscious energy consumption. Research activities are mainly focused on energy systems' analysis aimed at individuating climate-neutral scenarios for energy systems, climate change mitigation and adaptation strategies at the urban scale, renewable energy implementation and energy efficiency measures. Project Coordinator of the Interreg MED project PrioritEE PLUS (2021-2022) project, member of the coordination team of the PrioritEE project (2017-2019), she acted as a scientific expert in several European research projects on low-carbon energy transition, climate change adaptation. She is part of the coordination team of the EURO-LCP Initiativeon climate change plans and policies. Member of editorial board of the UCL OPEN: Environment Journal and she acts as guest editor for MDPI journals and anonymous refereeing for major international journals and proceedings. Her scientific activities have originated several papers appeared in high impact journals and conferences.
	Picture	

PRIORITEE: HOW to BRIEFS REPOSITORY of GOOD PRACTICES	Name	**Monica**
	Surname	**Salvia**
	Nationality	Italian
	Entity	National Research Council of Italy - Institute of Methodologies for Environmental Analysis (CNR -IMAA)
	Entity's country	Italy
	Bio	Monica Salvia is senior researcher (Primo Ricercatore) at CNR-IMAA. She holds a degree in Environmental Engineering (M.Sc.) and a Ph.D. in Methods and technologies for environmental monitoring. Monica has a strong background in energy systems analysis and models development and a solid experience in supporting local authorities on sustainable resource-efficient strategies. Research activities are mainly focused on local climate planning, mitigation and adaptation strategies, rational use ofenergy, renewable energy sources and smart cities. Monica has proven experience in international cooperation in science and technology: she is part of the coordination team of the EURO-LCP Initiative on local climate planning, has contributed to the EERA/JP "Smart Cities" and JPI Urban Europe/UERA (the Urban Europe Research Alliance) activities, she was member in the Management Committee of Actions TU1104 "Smart Energy Regions" and TU0902 "Integrated assessment technologies to support the sustainable development of urban area" and took part in the IEA-ETSAP activities. She has a proven experience in the management of national and European S&T projects: she is Task Leader in the Horizon Europe CapaCITIES Project "Building Capacities for the Climate Neutral and Smart Cities Mission" (2022-2024), she acted as Project Coordinator of the Interreg MED project "PrioritEE" (2017-2019) and Scientific Project Manager in the Italian Ministry of Education, University and Research (MIUR) funded "SMART Basilicata" project (2012-2018); she was Scientific Project Manager of CNR-IMAA in the SEE "RE-SEEties" Project and Communication Manager on behalf of her own institute in the INTERREG IVC "RENERGY" project (2012-2014). Monica has also a proven experiencein the evaluation of national and European S&T projects. She acts as guest editor and anonymous refereeing for major international journals and proceedings. Her scientific activities have originated several papers appeared in international Journals and Conferences.
	Picture	

Project: EDUFOOTPRINT

EDUFOOTPRINT: School Enviromental Guidelines & Platform Guideline for energy efficiency monitor and management in public buildings	Name	**Antonio**
	Surname	**Zonta**
	Nationality	Italian
	Entity	Independent expert
	Entity's country	Italy
	Bio	Antonio graduated in Civil Engineering from the University of Padua and holds a BEC (Business Excellence Certificate) from SDA Bocconi – Milan. He developed his professional career as a technical officer within public organizations. From 1996 to 2019 he worked for the Province of Treviso, covering different positions as Director of Department in the field of Buildings and Real Estates management. Antonio developed a significant experience in managing more than 140 school buildings, through the evolution of Energy Performance Contracts, integrated with the active participation of users in the pursuit of energy efficiency goals. In 2012 these models were awarded the prize for best practices in real estate management in the Italian public administration. He also participated in several EU funded projects in the field of energy efficiency and sustainability. He worked as coordinator of the projects TOGETHER – TOwards a Goal of Efficiency THrough Energy Reduction – funded within the Interreg Central Europe 2014-2020 programme, and EduFootprint, funded by the Interreg MED programme 2014-2020. He currently works as an independent expert in the fieldsof energy efficiency, sustainability, energy & facility management of public buildings.
	Picture	

Project: Med-EcoSuRe

Med-EcoSuRe: Toolkit for passive solutions design Mediterranean Cross -Border Living Lab	Name	**Antonella**
	Surname	**Trombadore**
	Nationality	Italian
	Entity	University of Florence
	Entity's country	Italy
	Bio	Professor of Environmental Design at the University of Florence and University of Tirana (Albania), PhD,MSc, Architect - 1999 she works at the Department of Architecture and ABITA Interuniversity research centre in the field of Sustainable Architecture, Responsive Design, Green Architecture for Resilient Citiesand Sustainable Immersive tourism.Team leader of several European Research Projects in the field of architectural integration of innovative solutions for energy retrofitting actions, nearly zero buildings, as well as integrated smart process in Mediterranean climatic and cultural context. She collaborates with Local and Regional Administrations for the planning and design of national and international proposals, to support the definition of innovative measures and local development actions, in the field of material and immaterial data mapping for responsive tourism, conscious and sustainable use of fragile territories. Technical coordinator of international Post-Graduate Master Course in "Sustainable Architecture". She is involved in the design and technologies for built environment in the different Mediterranean, North Africa, Middle East climatic zones, with a focus on Nature-based solutions for climate and environmental responsive design. She is a contracted expert at the Research Executive Agency (REA) European Commission (2017) for the evaluation of international research project HORIZON–EeB-05-2017 - Development of Near Zero Energy Building Renovation; She is a member of international networks such as PLEA and WREC, and author of scientific contributions, papers and books.
	Picture	

Med-EcoSuRe: Toolkit for passive solutions designMediterranean Cross -Border Living Lab	Name	**Debora**
	Surname	**Giorgi**
	Nationality	Italian
	Entity	University of Florence
	Entity's country	Italy
	Bio	PhD, Architect, with a Master in Eco-sustainable Architecture from the Faculty of Engineering of the University of Bologna, is Associate Professor of Industrial Design at the Department of Architecture, University of Florence. For more than 20 years he has been working on projects as an expert and project managerin Ethiopia, Algeria, Tunisia, Morocco, Yemen, Jordan, Haiti, with the most important national and international institutions World Heritage Fund - UNESCO, UNCCD, World Bank, European Commission, World Monument Fund, Ministry of Foreign Affairs and International Cooperation - MAECI, Tuscany Region, Marche Region. Since 2011 she has collaborated continuously with the Laboratory of Design for Sustainability (Department of Architecture - University of Florence) where she deals with issues related to design with the South of the World with direct experience in Maghreb countries and in the social field by promoting projects and workshops of Social Design and social Innovation using the methodologies of service Design and co-design. Since 2018, she is professor of Service Design and is involved in the development of service projects aimed at both public administrations, companies and civil society with a specific focuson the application of ICT in service development: platform and App development, User eXperience and User Interface. Together with ElisabettaCianfanelli, she co-directs the REI Design Laboratory - Reverse engineering & Interaction Design at the Department of Architecture and she coordinate the design sectorof the of LXR - XReality LAB – (DIDA-UNIFI). She is a member of BeX Lab - Building Environmental eXperience (DIDA UNIFI).
	Picture	

Med-EcoSuRe: Toolkit for passive solutions design Mediterranean Cross -Border Living Lab	Name	**Gisella**
	Surname	**Calcagno**
	Nationality	Italian
	Entity	University of Florence
	Entity's country	Italy
	Bio	Architect, PhD, Msc. She graduated at the School of Architecture of the University of Florence with a master thesis in Technology of Architecture on the design of temporary housing/reception solutions for asylum seekers in Sicily, matched with a multicriteria analysis to support public administration in undertaking appropriate and sustainable choices. The attention to Mediterranean architecture and the need to rehabilitate it was deepen through the participation to the interuniversity II level master ABITA (Architettura Bio-ecologica eTecnologie Innovative per l'Ambiente), and in particular with the thesis on the potential of digital technologies (in particular BIM - Building Information Modelling), to sustain more efficient retrofit processes of existing buildings. During the PhD research she deepened her knowledge on the social aspects of architecture, focusing on the influence of environmentaland architectural quality on the most fragile social groups, working onthe definition of guidelines to support the urban and architecturaldesign of reception centers in Italy. During the research period, shehad the opportunity of a research stage period in Norway, at theFaculty of Architecture and Design of the Norwegian University ofScience and Technology, as well as to dialogue with experts thanks tothe participation in different international conferences on the theme. After the PhD, she took part in the research group on housingemergencies (post-earthquake temporary solutions) at the THESISresearch center – University of Florence. In the last years, she is working in the interdisciplinary research laboratory beXLab (building environmental eXperience), created in the context of the Med-EcoSuRe project Since 2018, she is professor ofService Design and is involved in the development of service projects aimed at both public administrations, companies and civil society with a specific focus on the application of ICT in service development: platform and App development, User eXperience and User Interface. Together with ElisabettaCianfanelli, she co-directs the REI Design Laboratory - Reverse engineering & Interaction Design at the Department of Architecture and she coordinate the design sector of the of LXR - XReality LAB – (DIDA-UNIFI). She is a member of BeX Lab - Building Environmental eXperience (DIDA UNIFI).

	Picture	

Med-EcoSuRe: Toolkit for passive solutions designMediterranean Cross -Border Living Lab	Name	**Juan Camilo**
	Surname	**Olano Salinas**
	Nationality	Italian
	Entity	University of Florence
	Entity's country	Italy
	Bio	MSc, Architect, with a master in Bioecological Architecture and Innovation technologies for the environment from the Department of Architecture of the University of Florence. Is an Architect, Researcher and Project Manager who shares his experience between the University of Florence and the private sector. Born in Bogota, Colombia where started his international experience, and for more than 15 years has designed and developed numerous projects in South America, Africa and Europe. Since 2019 he has collaborated continuously with the "building environmental eXperience Laboratory – beXLab" (Department of Architecture - University of Florence), where the team is dealing with the matters related to energy efficiency, building energy performance,indoor quality, comfort and wellbeing, promoting innovation, wellbeing and a people behavior change through architectural design and communication.
	Picture	

Med-EcoSuRe: Toolkit for passive solutions design Mediterranean Cross -Border Living Lab	Name	**Giacomo**
	Surname	**Pierucci**
	Nationality	Italian
	Entity	University of Florence
	Entity's country	Italy
	Bio	Energy engineer with a Phd in development of renewable sources applications. Currently, is a post-doctoral researcher acting as a bridge between the Department of Industrial Engineering and the Department of Architecture DIDA of University of Florence. During the last 10 years he studied different aspects of energy systems, with a focus on the optimization of the complex system "building/plant/user" and the integration of renewable sources, aiming wellbeing/comfort in living spaces. His working experience includes both numerical analysis and experimental activities. Giacomo is an expert in thermodynamic systems simulation, test rig design, realization, monitoring and data acquisition methodologies with post- processing. He participated in various national/European projects and collaborations with other research groups and private companies.Among them: • MED ECOSuRe project proposes the definition and diffusion of cost-effective energy renovation within university buildings, with the perspective of extending results to the whole public sector in the long term. Inside this project a new interdisciplinary laboratory was created by combining the most recent technologies for the digital modeling of buildings information (BIM) with dynamic environmental monitoring systems (sensors, IoT), in order to develop Digital Twins for the evaluation of predictive scenarios of environmental sustainability and energy efficiency. • REPLICATE project aimed at demonstrating the impact of innovative technologies used to co-create smart city services with citizens, especially in refurbishment contexts; • Development of a novel heat-flux sensor and methodologies for the evaluation of the building performance in dynamic conditions (agreement with company that manages the social housing in Florence); • SALTO, CESARE, ALONE, PIACE, SCOOP, SOLARGRID, MUST
	Picture	

Med-EcoSuRe: ICT platform	Name	**Ines**
	Surname	**Khalifa**
	Nationality	Tunisian
	Entity	Mediterranean Renewable Energy Centre
	Entity's country	Tunisia
	Bio	A doctor of philosophy in industrial engineering with a focus on building energy performance modeling and simulation, graduated from the National Engineering School of Tunis-Tunisia. From 2011 to 2015, she delivered courses for engineering students in configuration management and statistical process control for industrial applications, as well as training sessions in dynamic modeling and simulation of renewable energy systems. Ines has joined MEDREC in 2016 where she gained experience in project design, management and coordination in the field of energy efficiency and renewable energies. She is currently the Technical Manager of MEDREC and the coordinator of the EU funded project MedEcoSuRe.
	Picture	

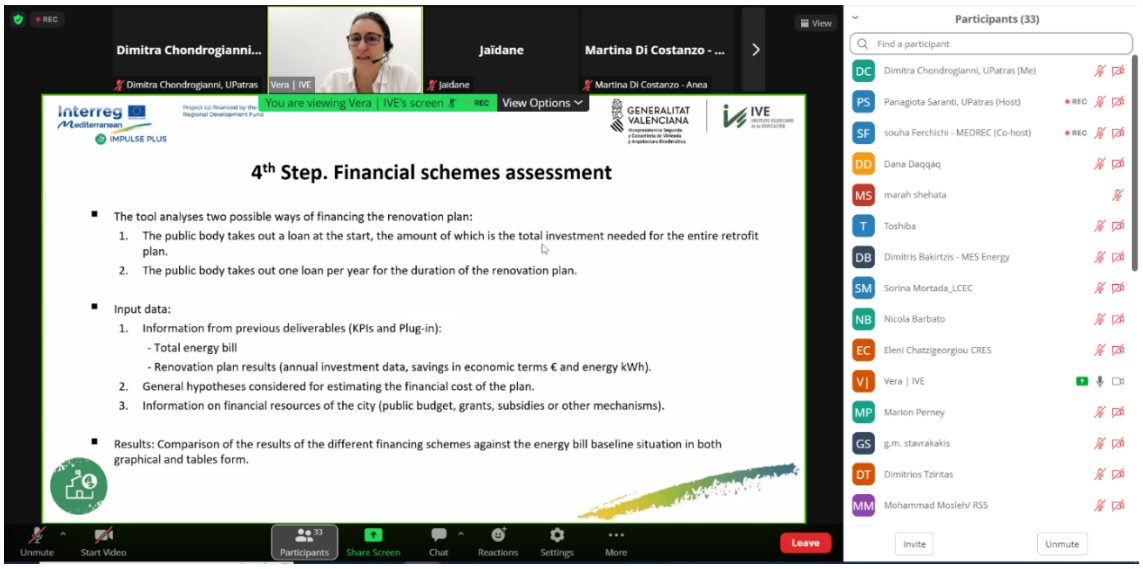
Med-EcoSuRe: ICT platform	Name	**Souha**
	Surname	**Ferchichi**
	Nationality	Tunisian
	Entity	Mediterranean Renewable Energy Centre
	Entity's country	Tunisia
	Bio	Doctor of Philosophy in Mechanical Engineering, with a focus on sustainable energy systems, graduated from the National Engineering school of Tunis, and has been a technical expert at the Mediterranean renewable energy centre (MEDREC) since 2019. Souha have been implementing and managing cross border cooperation projects which aim at contributing to combating climate change, fostering socio-economic development and boosting access to affordable and climate-friendly energy, through the introduction of innovative, eco-sustainable and cost effective solutions in the Mediterranean context. She is member of the coordination team of the project Med-EcoSuRe, and the local coordinator of the project SECAP 4SDG , which both aim at implementing operational and strategic guidance tools for the energy rehabilitation of buildings, improving energy efficiency and capturing cost-effective energy savings in the public building sector which is the largest energy consumer in the Mediterranean area. Souha has also supervised an ERASMUS master project on assessing the performance and techno-economic viability of a Micro-Grid system in a Tunisian context, and has published several scientific papers focusing on the modeling and optimization of a Hybrid (solar and biomass) Concentrated Solar Power Plant installed in Tunisia.
	Picture	

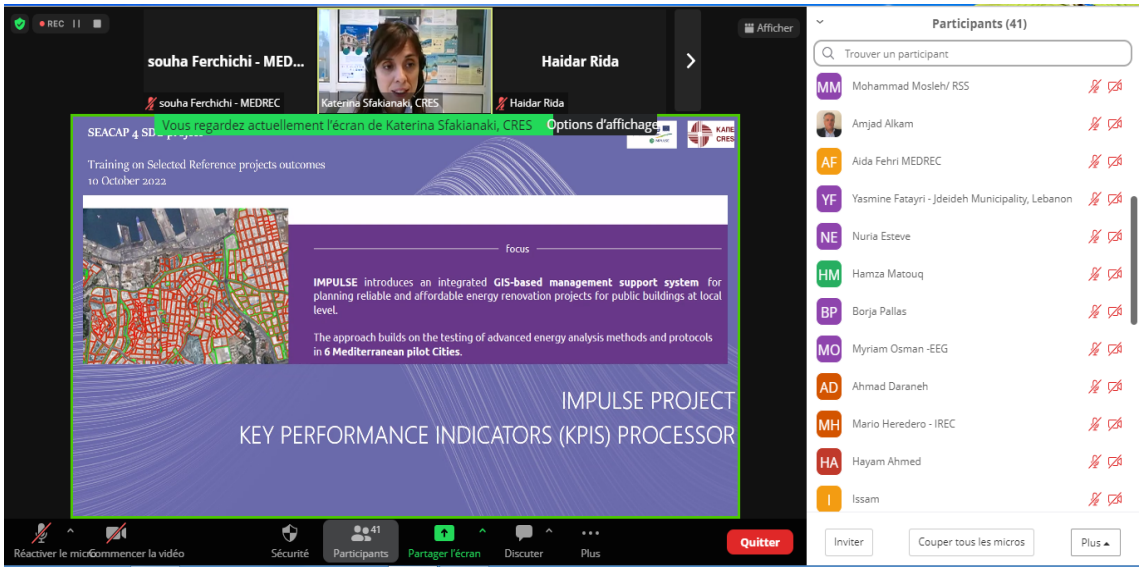
Annex 3 Training of SRPs – Additional photos per session

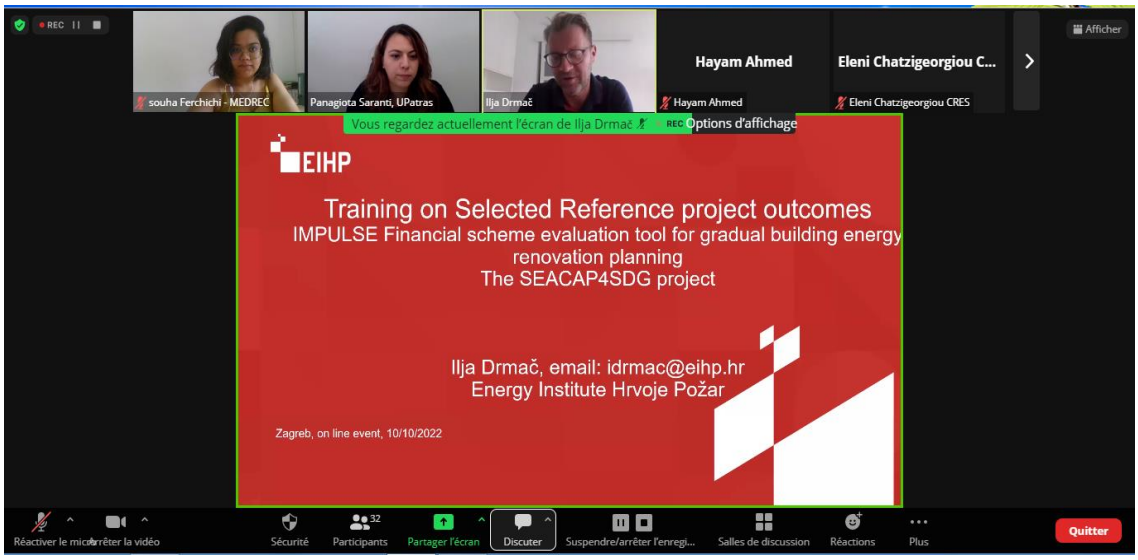
Session 1: Training on IMPULSE project outcomes

- *Preparatory Setup*
- *KPIs Processor*
- *METHODOLOGY BOOKLET*
- *FINANCIAL Scheme*

Date: 10 October 2022



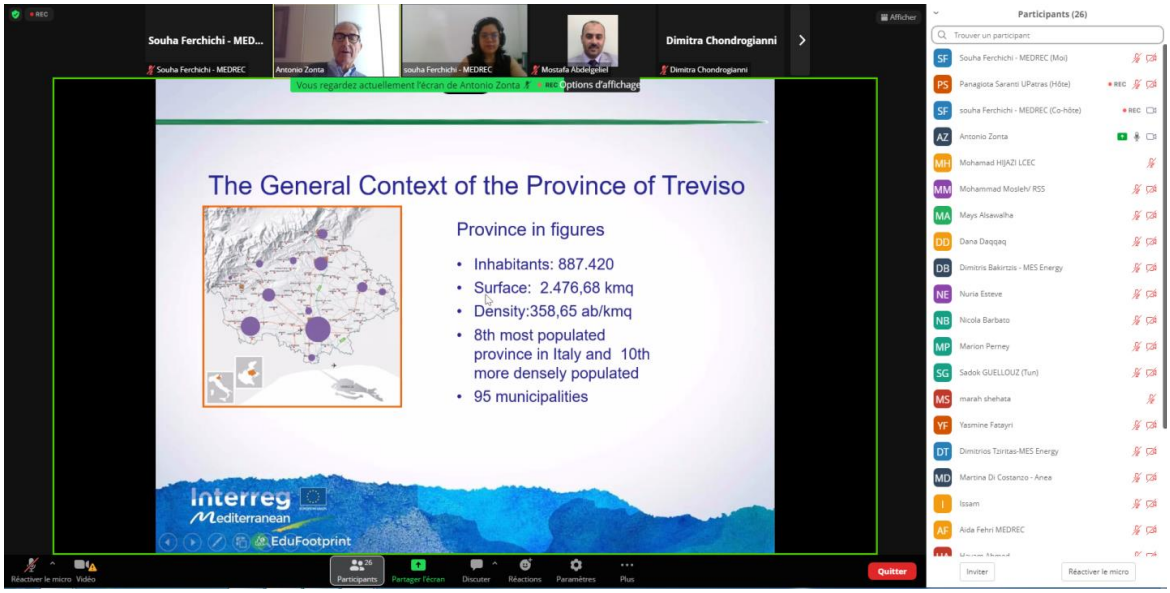


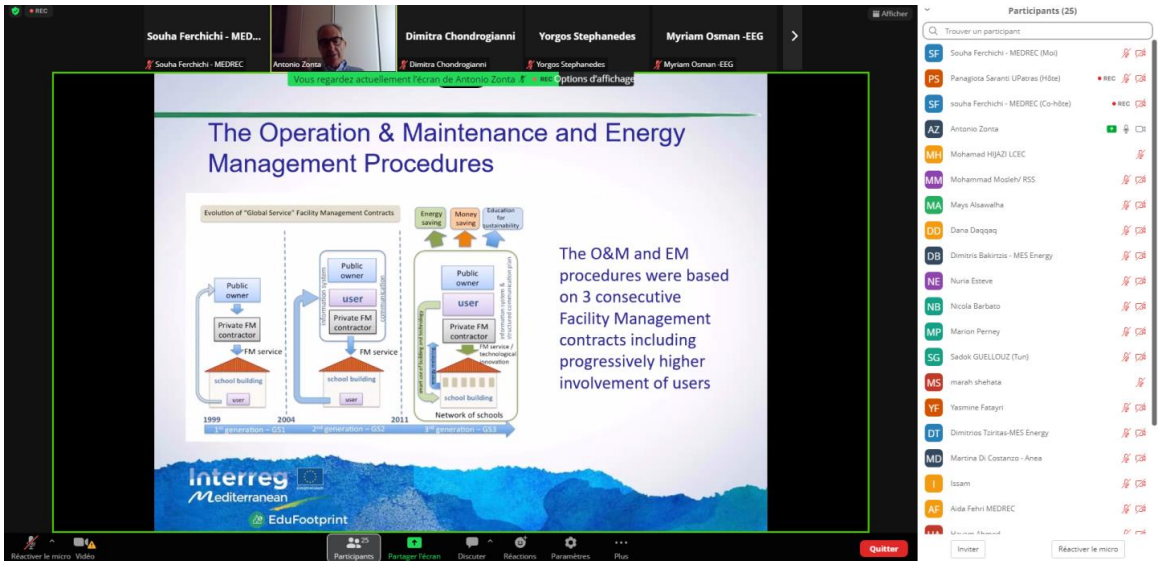


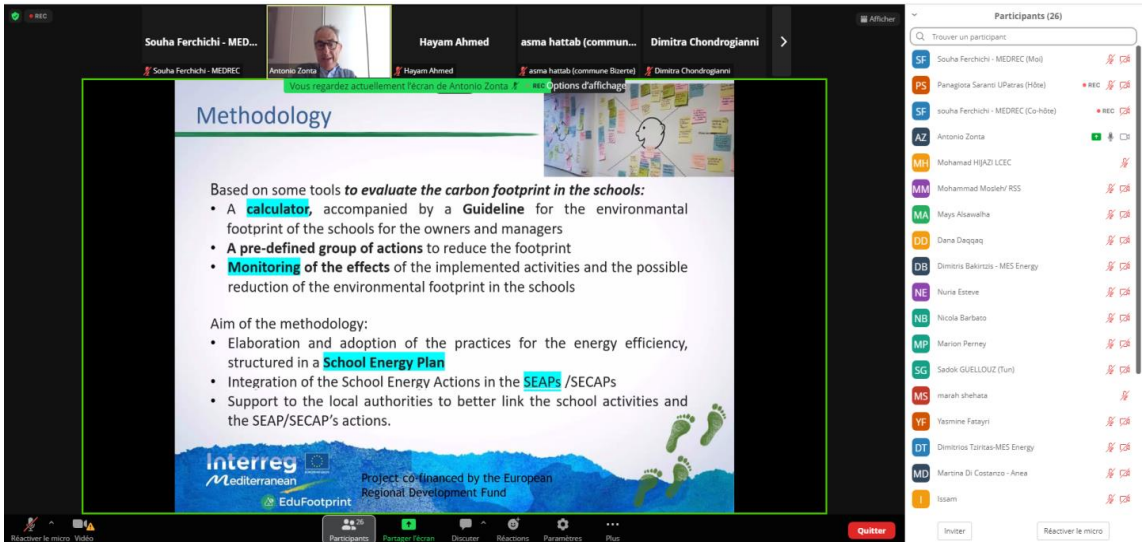
Session 2: Training on EDUFOOTPRINT project outcomes

- ***EDUFOOTPRINT School Environmental Guidelines***
- ***EDUFOOTPRINT Platform***

Date: 11 October 2022




Souha Ferchichi - MED...
Dimitra Chondrogianni
Yorgos Stephanedes
Myriam Osman -EEG
Vous regardez actuellement l'écran de Antonio Zonta
Options d'affichage
The Operation & Maintenance and Energy Management Procedures
Evolution of "Global Service" Facility Management Contracts
Public owner
Private FM contractor
FM service
school building
user
Network of schools
1999
2004
2011
The O&M and EM procedures were based on 3 consecutive Facility Management contracts including progressively higher involvement of users
Interreg Mediterranean
EduFootprint
Participants (25)
Quitter


Souha Ferchichi - MED...
Hayam Ahmed
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Dimitra Chondrogianni
Vous regardez actuellement l'écran de Antonio Zonta
Options d'affichage
Methodology
Based on some tools *to evaluate the carbon footprint in the schools:*
• A calculator, accompanied by a Guideline for the environmantal footprint of the schools for the owners and managers
• A pre-defined group of actions to reduce the footprint
• Monitoring of the effects of the implemented activities and the possible reduction of the environmental footprint in the schools
Aim of the methodology:
• Elaboration and adoption of the practices for the energy efficiency, structured in a School Energy Plan
• Integration of the School Energy Actions in the SEAPs /SECAPs
• Support to the local authorities to better link the school activities and the SEAP/SECAP's actions.
Interreg Mediterranean
EduFootprint
Project co-financed by the European Regional Development Fund
Participants (26)
Quitter

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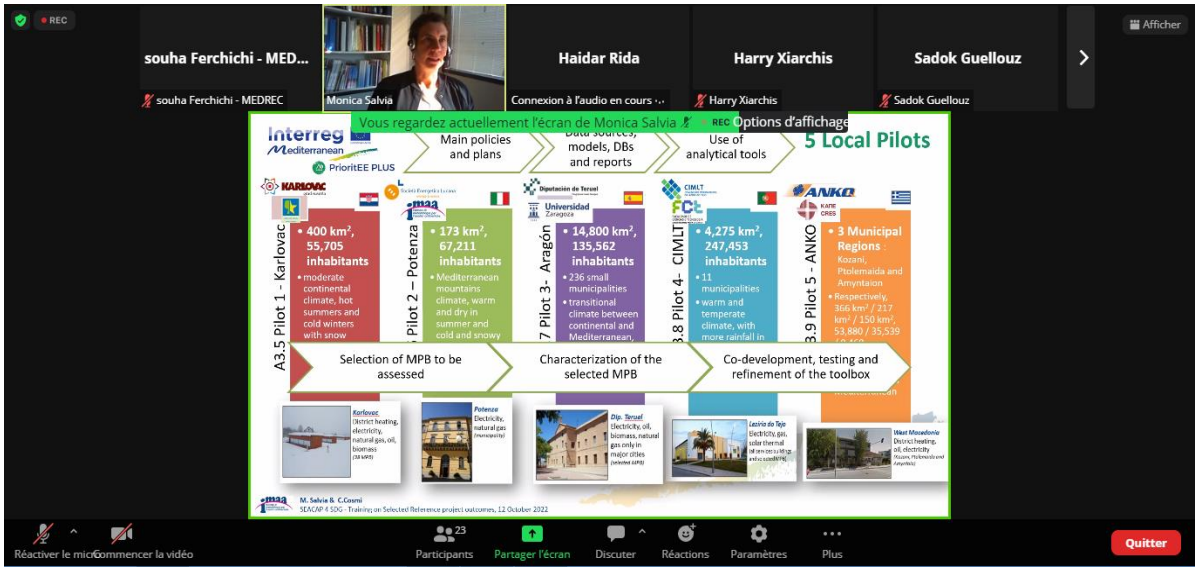
REGIONE AUTONOMA DELLA SARDEGNA

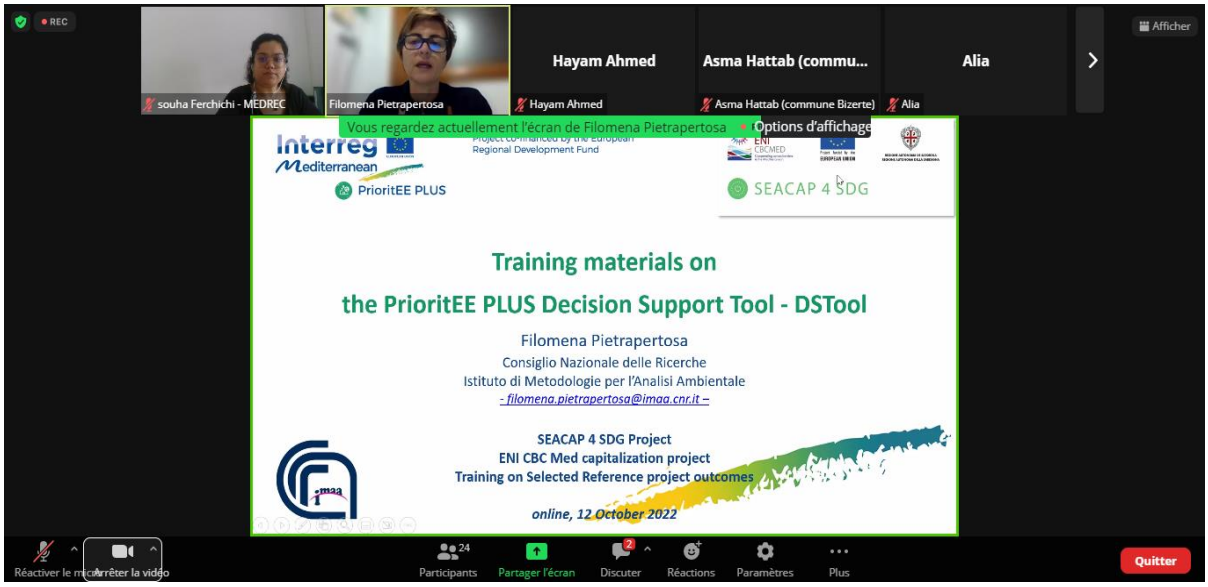
SEACAP 4 SDG

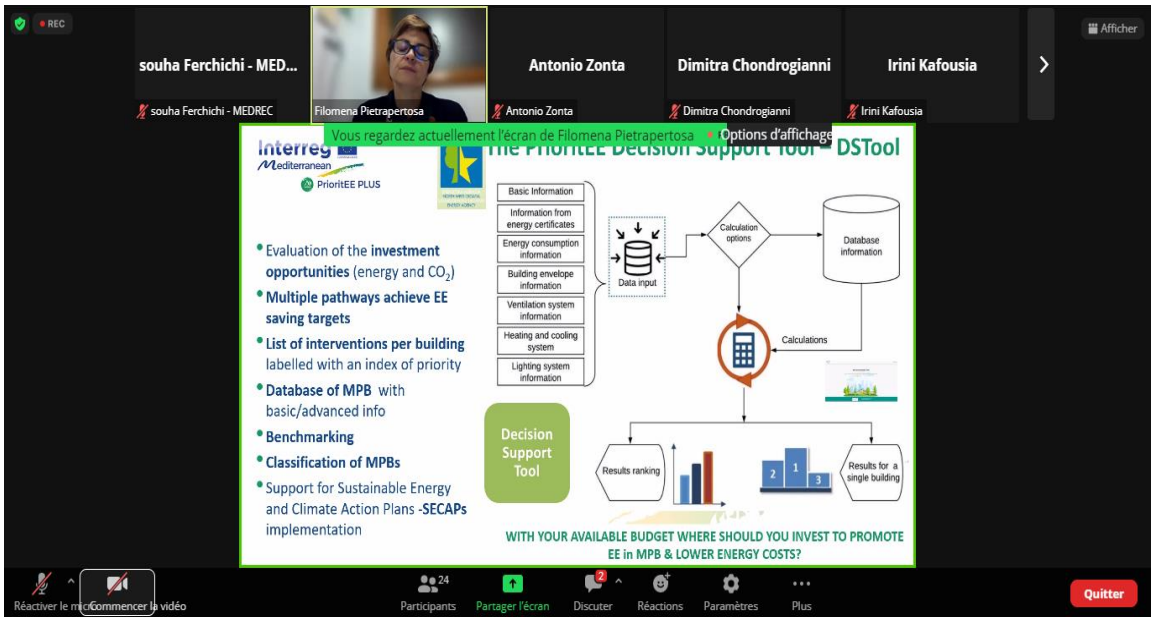
Session 3: Training on PRIORITEE project outcomes

- ***PRIORITEE HOW to BRIEFS***
- ***PRIORITEE REPOSITORY of GOOD PRACTICES***
- ***PRIORITEE PLUS Training Materials***

Date: 12 October 2022



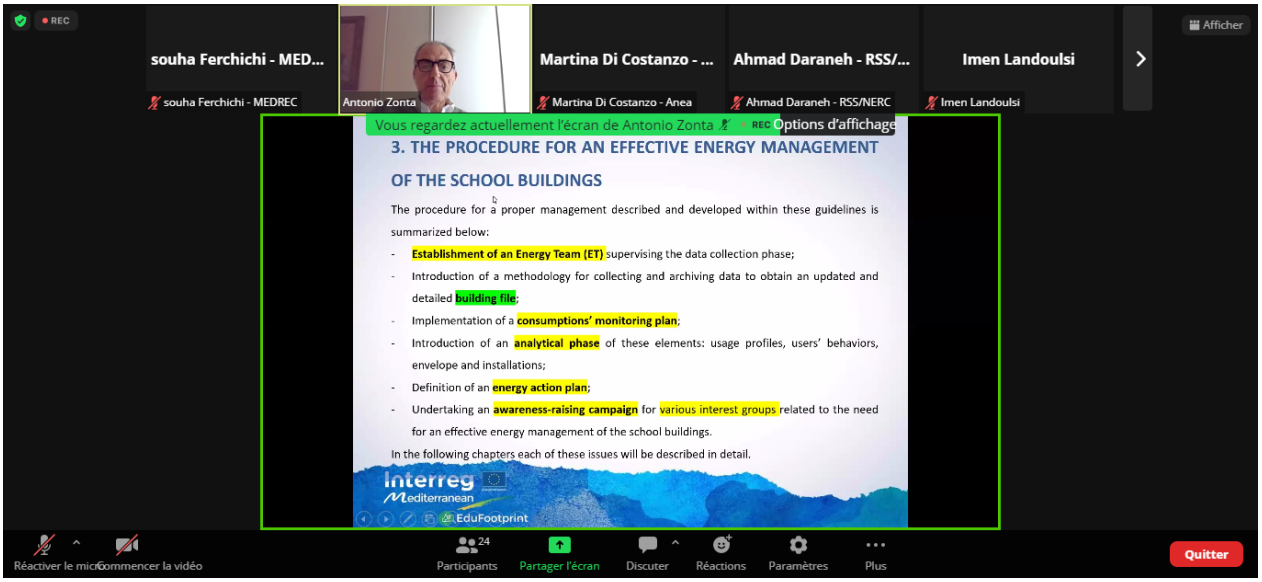


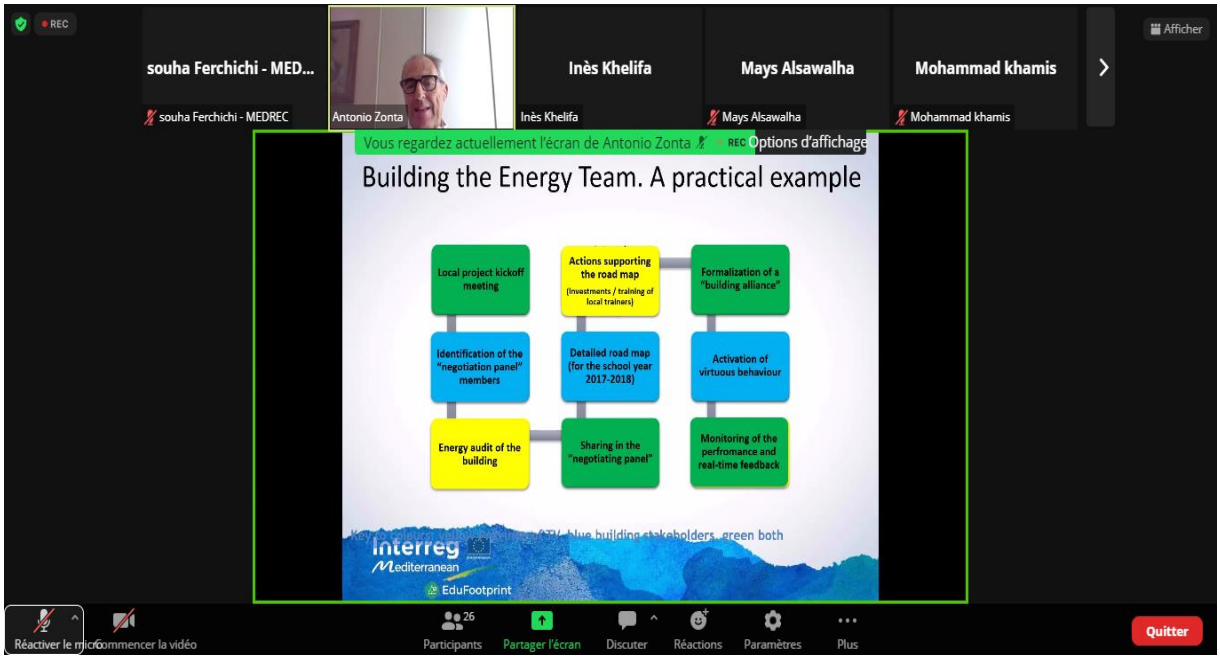


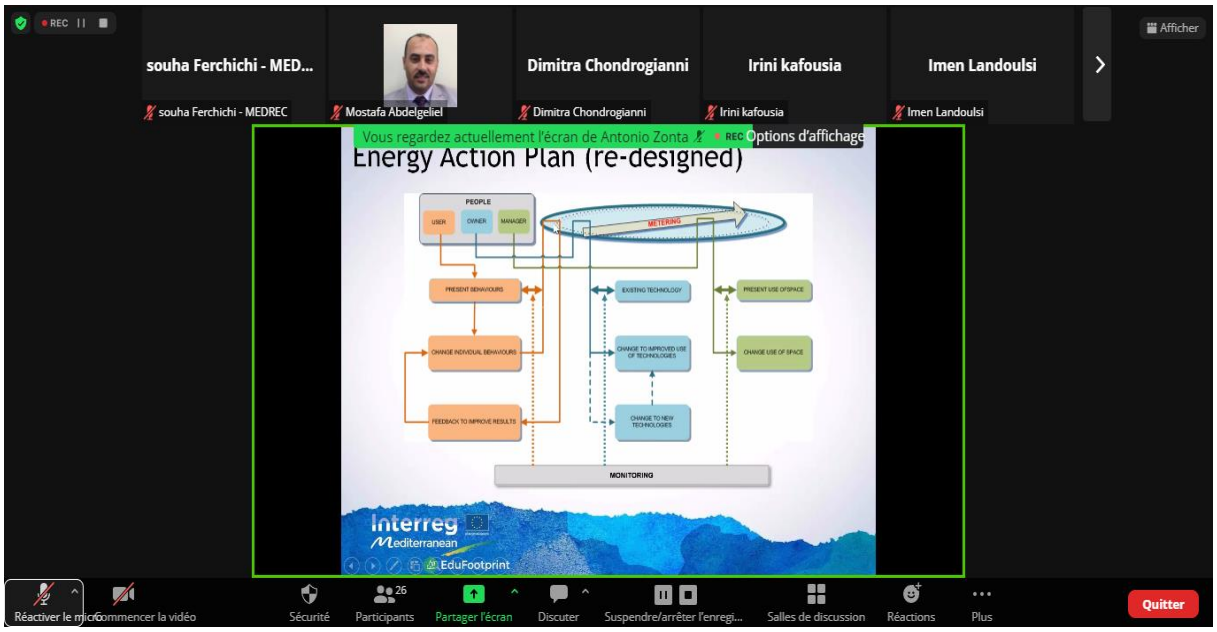
Session 4: Training on EDUFOOTPRINT project outcomes

- ***EDUFOOTPRINT guidelines for Energy Efficiency monitoring and management in public buildings***

Date: 13 October 2022




souha Ferchichi - MED...
Antonio Zonta
Inès Khelifa
Mays Alsawalha
Mohammad khamis
Vous regardez actuellement l'écran de Antonio Zonta
Options d'affichage
Building the Energy Team. A practical example
Local project kickoff meeting
Actions supporting the road map
Formalization of a "building alliance"
Identification of the "negotiation panel" members
Detailed road map (for the school year 2017-2018)
Activation of virtuous behaviour
Energy audit of the building
Sharing in the "negotiating panel"
Monitoring of the perfromance and real-time feedback
Interreg Mediterranean
EduFootprint
Réactiver le micro
Commencer la vidéo
Participants
Partager l'écran
Discuter
Réactions
Paramètres
Plus
Quitter


souha Ferchichi - MED...
Mostafa Abdelgeliel
Dimitra Chondrogianni
Irini kafousia
Imen Landoulsi
Vous regardez actuellement l'écran de Antonio Zonta
Options d'affichage
Energy Action Plan (re-designed)
PEOPLE
MONITORING
Interreg Mediterranean
EduFootprint
Réactiver le micro
Commencer la vidéo
Sécurité
Participants
Partager l'écran
Discuter
Suspendre/arrêter l'enregi...
Salles de discussion
Réactions
Plus
Quitter

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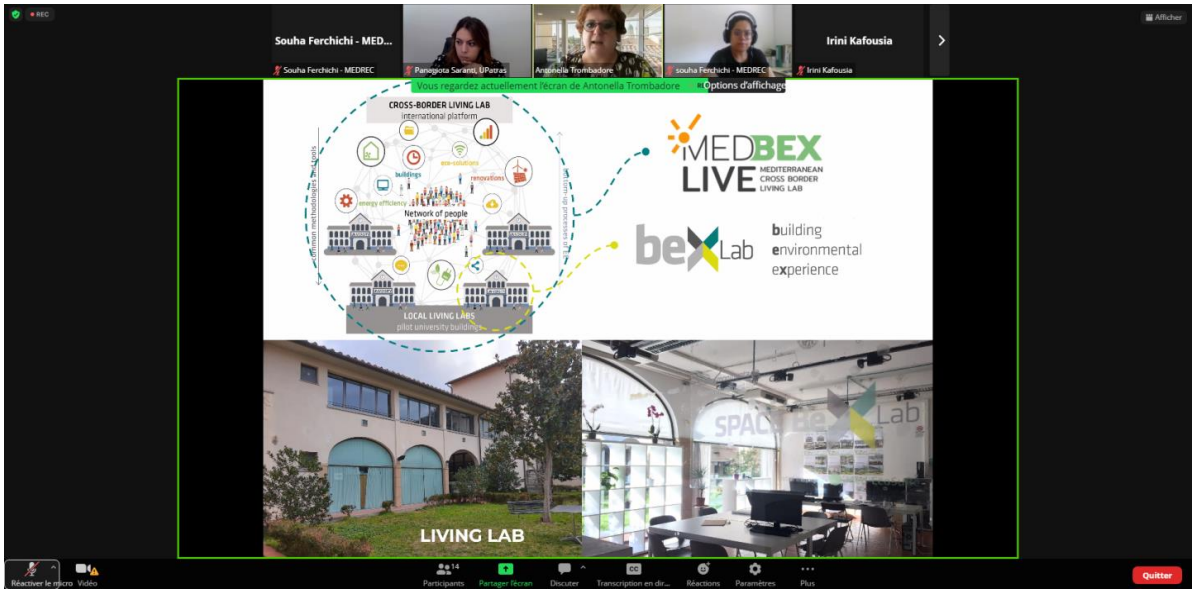
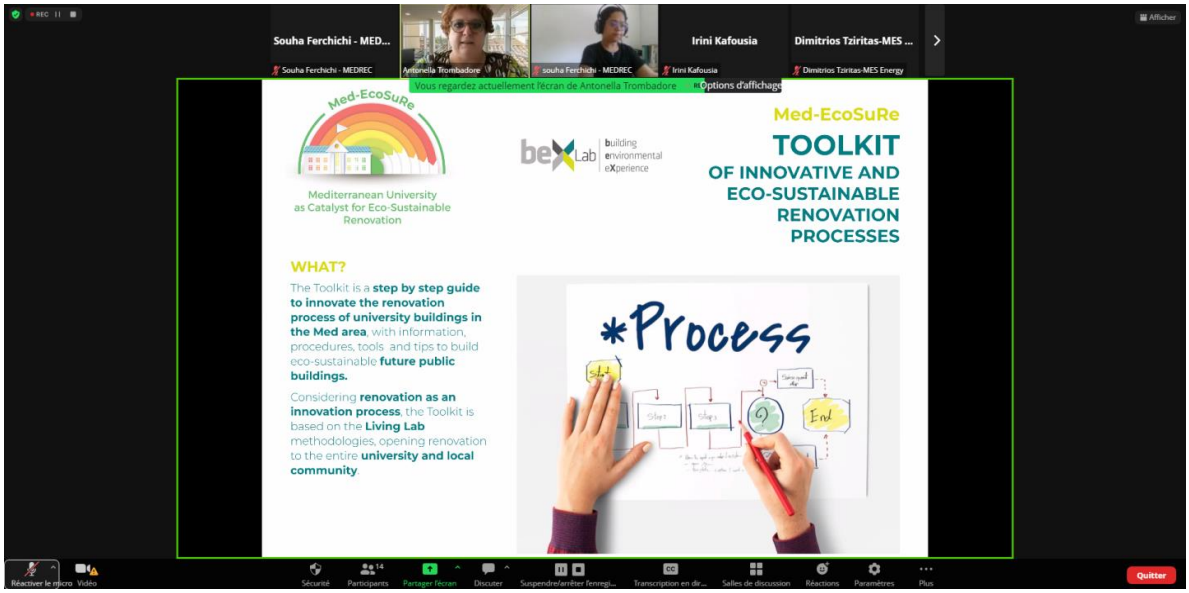
SEACAP 4 SDG

Session 5: Training on Med-EcoSuRe project outcomes

- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - *Toolkit presentation*
  - *STEP 1. Knowledge Framework*
  - *STEP 2. Analysis of Criticalities (criteria and benchmarking)*

Date: 18 October 2022

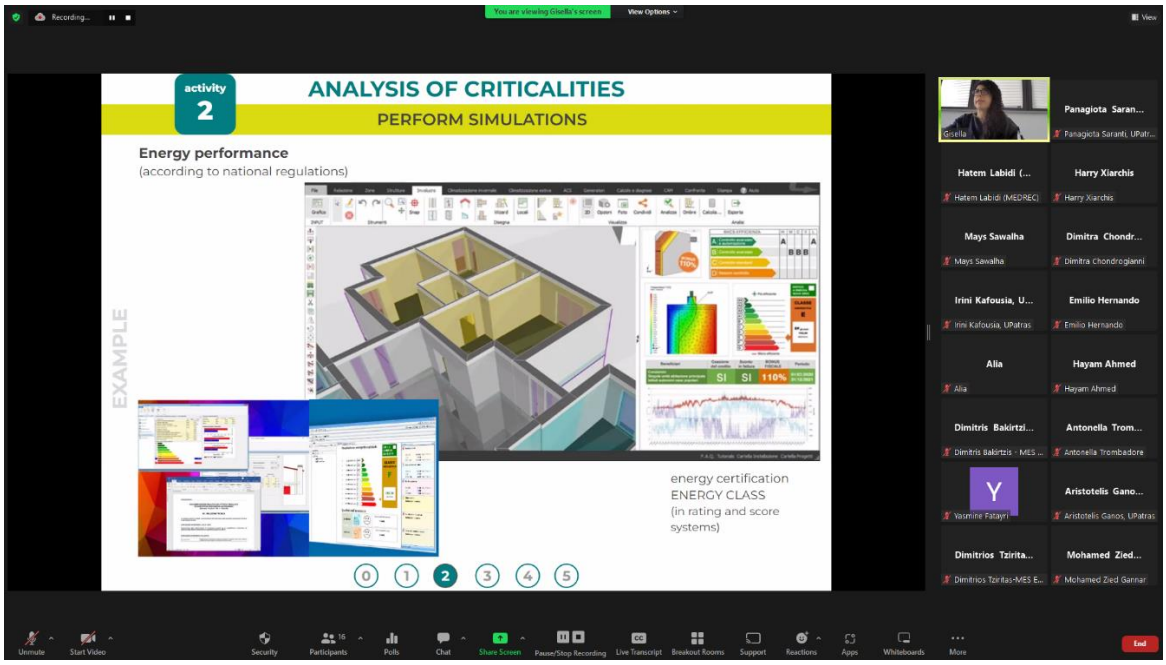




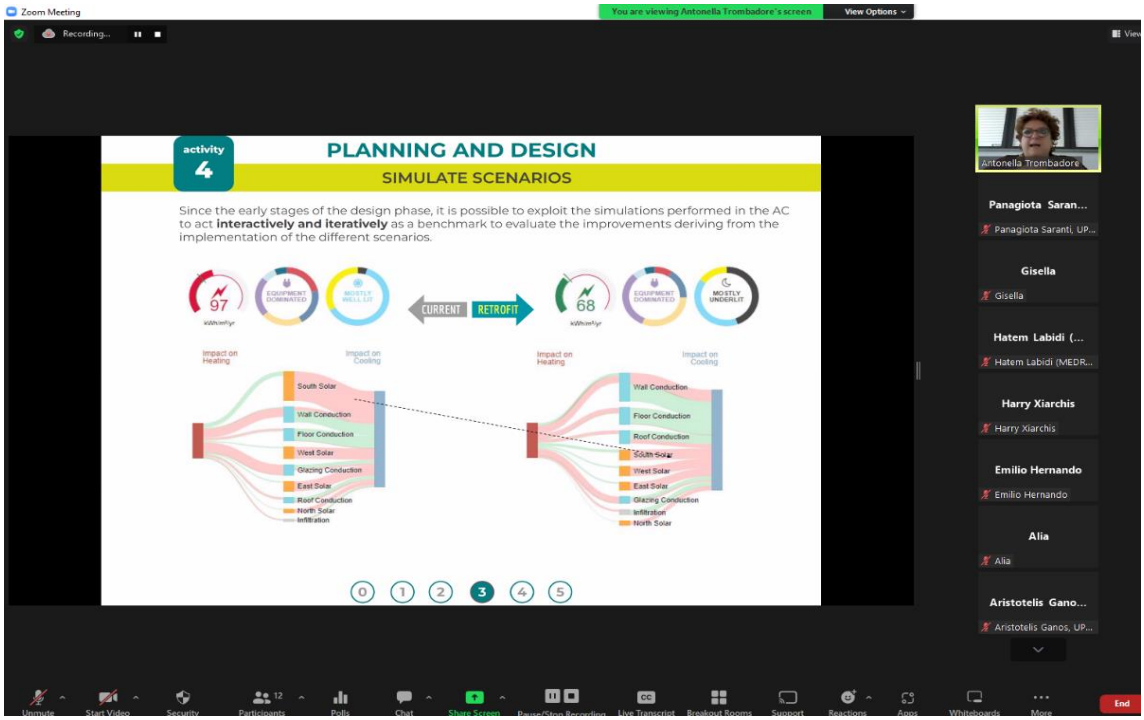
Session 6: Training on Med-EcoSuRe project outcomes

- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - *STEP 2. Analysis of Criticalities (criteria and benchmarking)*
  - *STEP 3. Planning and Design (focus on best-practices and abacus)*

Date: 19 October 2022



PLANNING AND DESIGN
Network of people
university building
LIVING LAB
"on the basis of the KF (Phase 1) and of the AC (Phase 2) most creative phase, when the criticalities of the existing building can become opportunities in integrated renovations (Phase 4)"
0 1 2 3 4 5


activity 4
PLANNING AND DESIGN
SIMULATE SCENARIOS
Since the early stages of the design phase, it is possible to exploit the simulations performed in the AC to act interactively and iteratively as a benchmark to evaluate the improvements deriving from the implementation of the different scenarios.
97
CURRENT
RETROFIT
68
0 1 2 3 4 5

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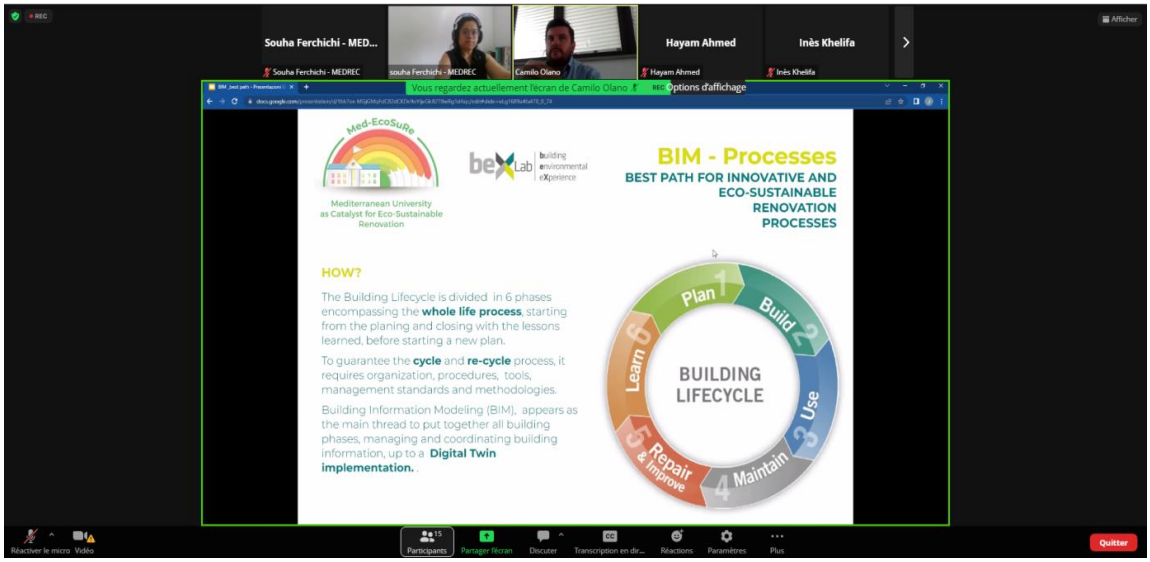
REGIONE AUTONOMA DELLA SARDEGNA

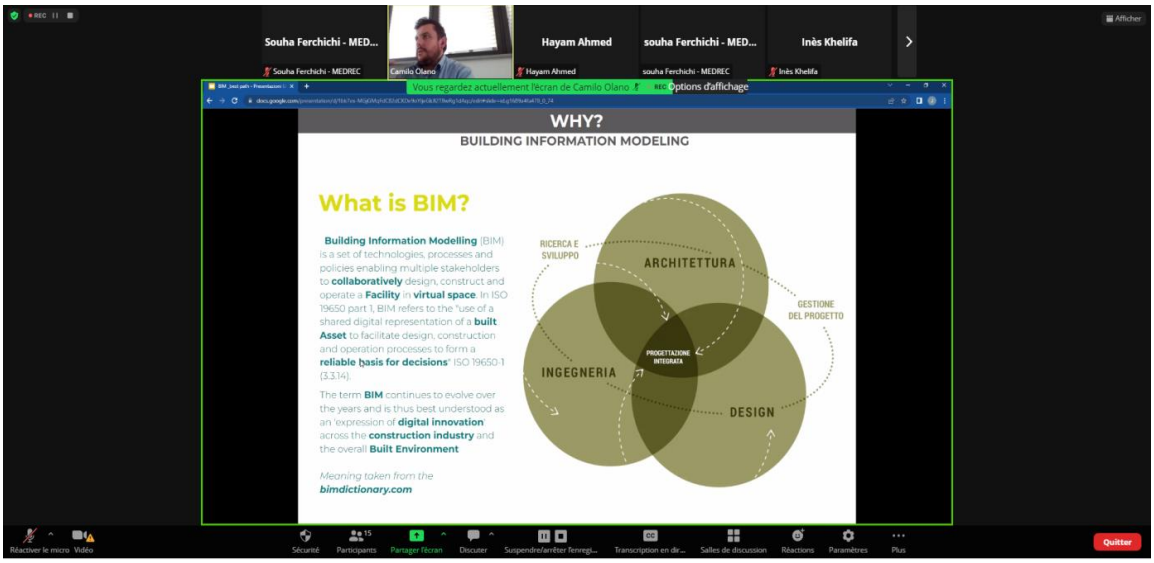
SEACAP 4 SDG

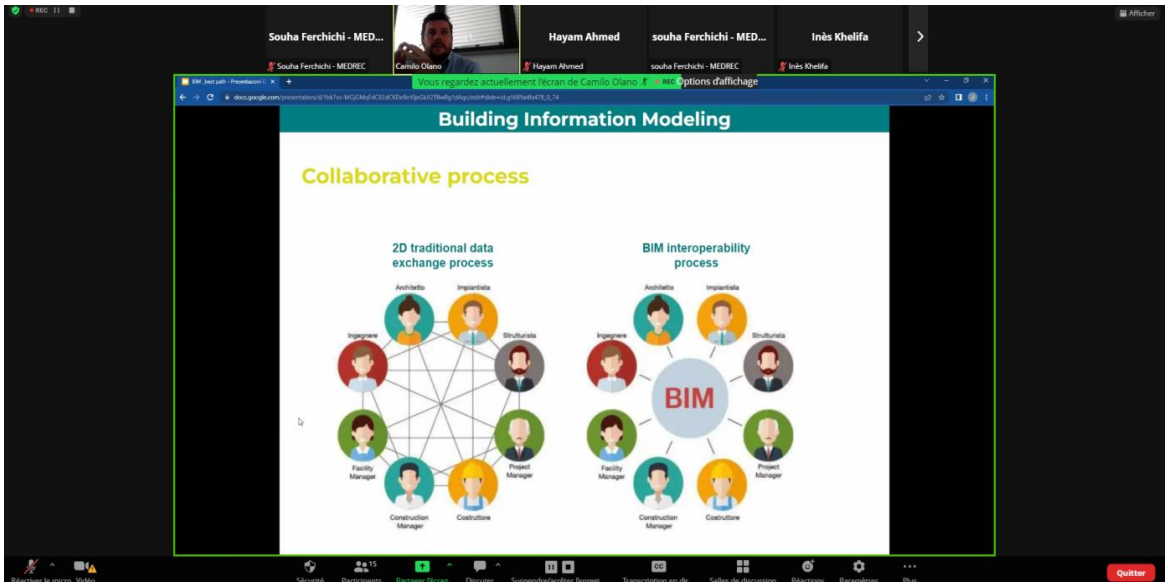
Session 7: Training on Med-EcoSuRe project outcomes

- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - *Toolkit presentation the best Path : BIM methodology*

Date: 20 October 2022



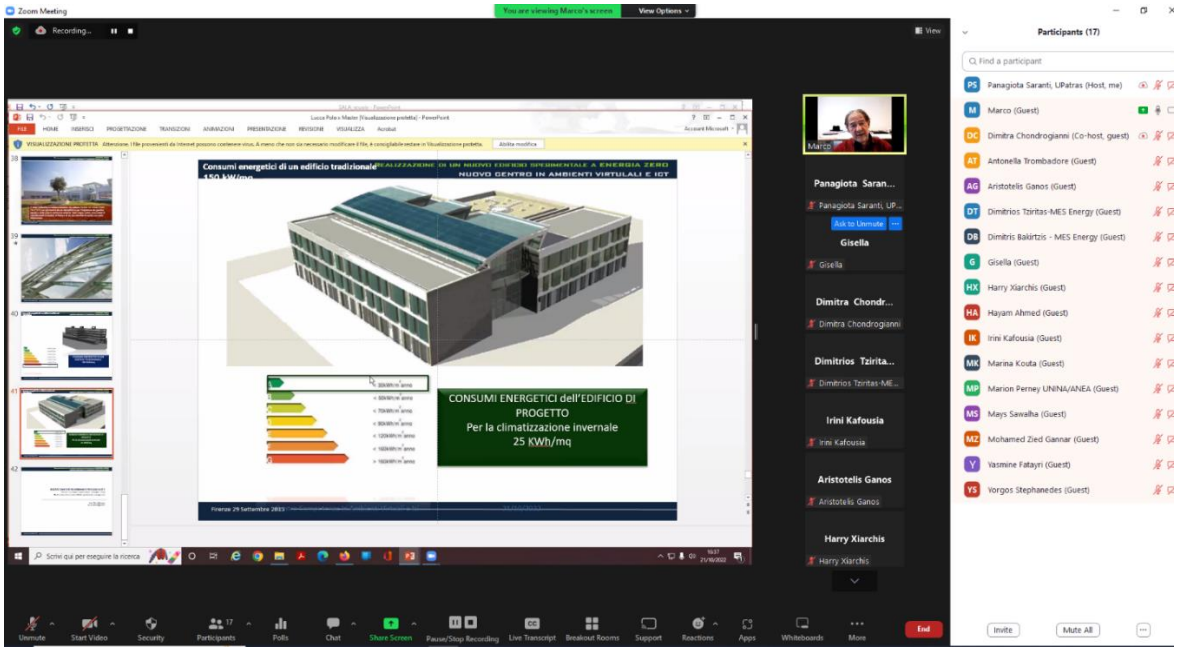


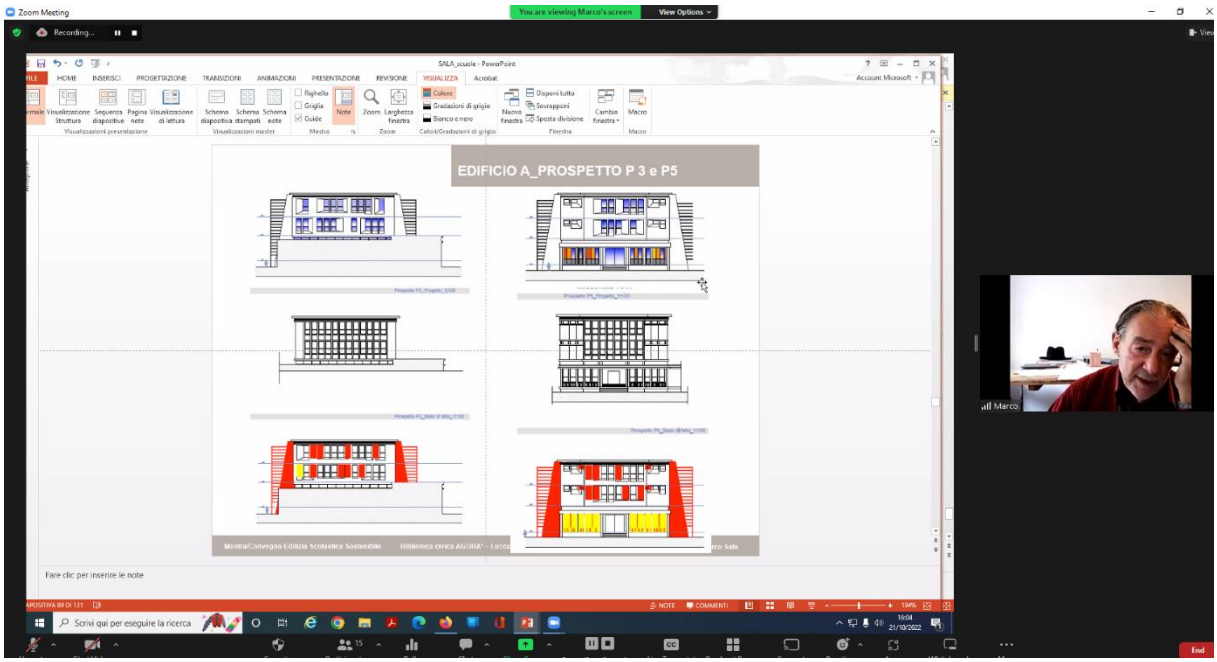


Session 8: Training on Med-EcoSuRe project outcomes

- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - *Focus: Simulation and evaluation of energy rehabilitation scenarios in a real case study application (provided by beXLab)*
  - *STEP 4. Intervention*
  - *STEP 5. Post-management*

Date: 21 October 2022




EDIFICIO A_PROSPETTO P 3 e P5

activity 1
INTERVENTION
TENDERING AND COMMISSIONING
The selecting of experienced, competent professionals and contractors who will work on the renovation of the existing building is critical to the success of the retrofit project
For public works, the activity regards the foresees formal and structured procedures for generating competing offers from different potential suppliers or contractors of works, supply, or service.
According to national or local requirements by law
RULES
THREE BASIC FORMS OF PROCESS FOR SECURING TENDERS:
Open tendering
Selective tendering
Negotiated tendering
Tendering can be carried out in:
Single-stage tendering
Two-stage tendering
0 1 2 3 4 5

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Session 9: Training on Med-EcoSuRe project outcomes

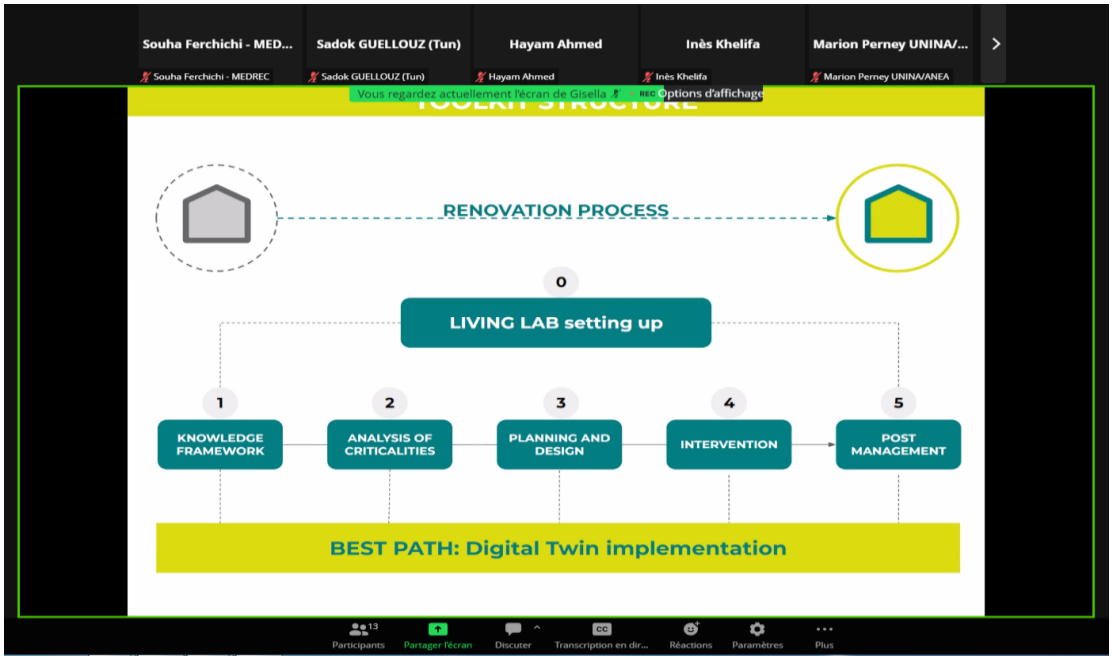
- *MED-ECOSURE online Platform*

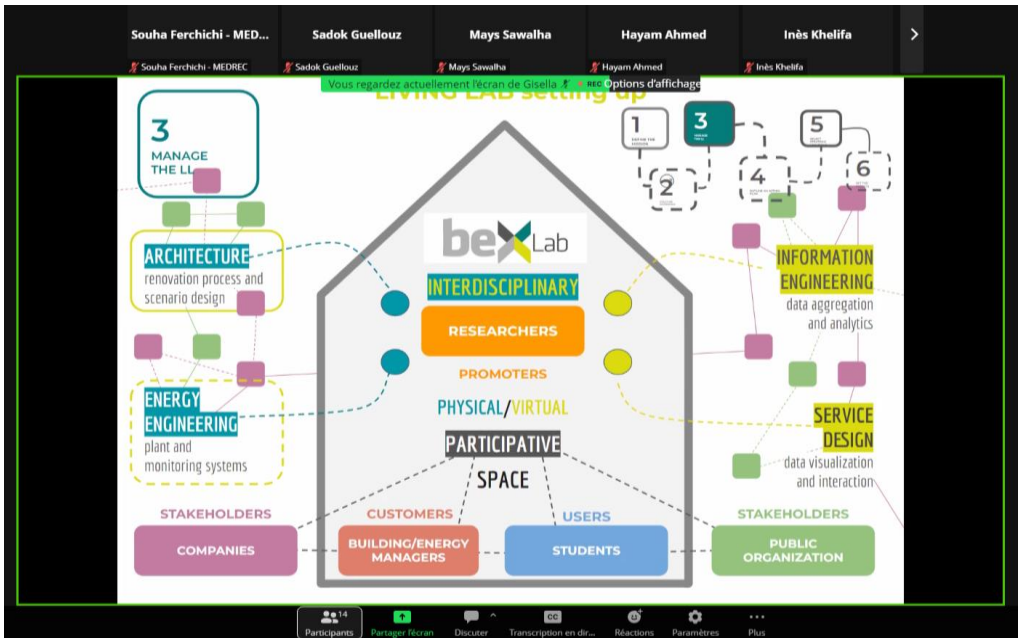
Date: 25 October 2022

Session 10: Training on Med-EcoSuRe project outcomes

- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - *Pilot project: to experiment an innovative and eco-sustainable renovation in the Living Lab context*

Date: 26 October 2022

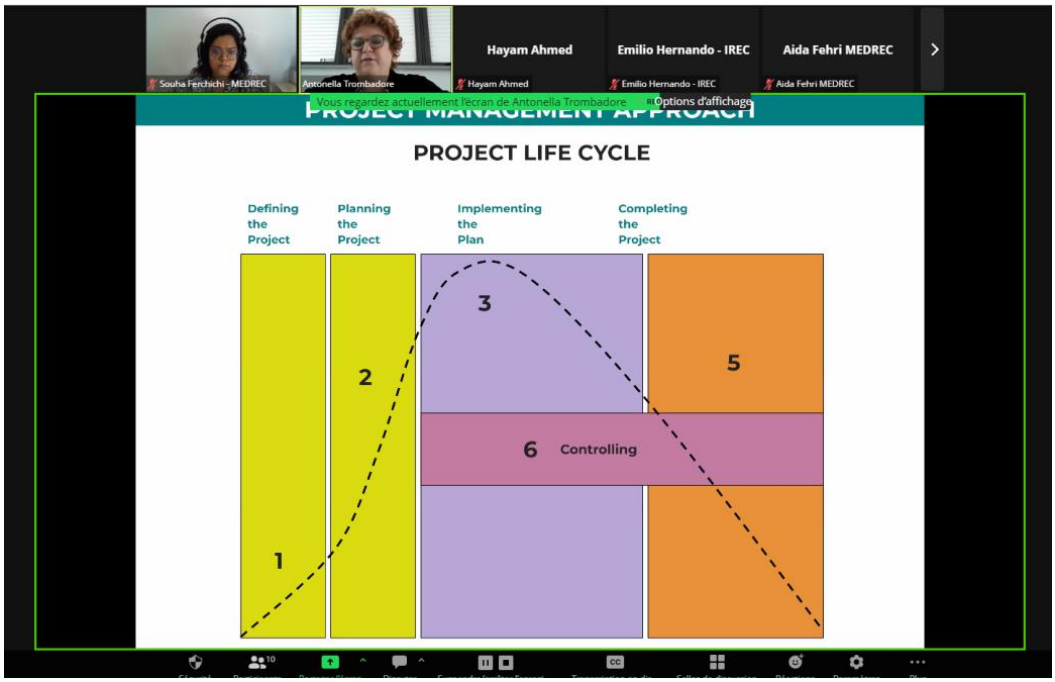




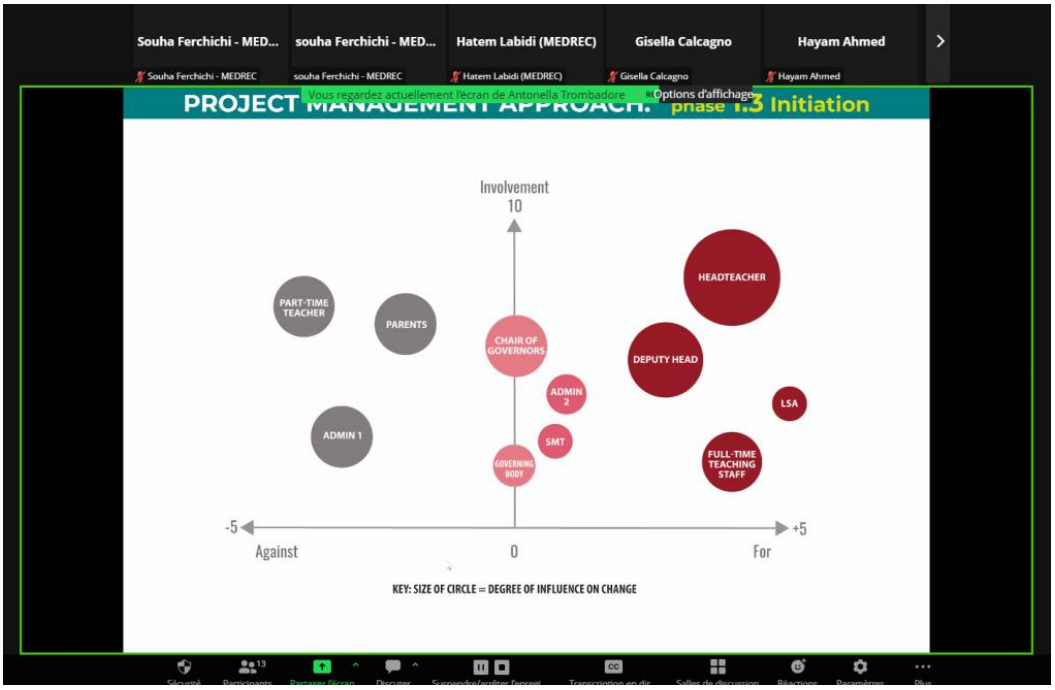
Session 11: Training on Med-EcoSuRe project outcomes

- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - *Stakeholders engagement for innovation and eco-sustainable renovation process of public buildings*

Date: 28 October 2022



Souha Ferchichi - MED...
Gisella Calcagno
Hayam Ahmed
Emilio Hernando - IREC
Vous regardez actuellement l'écran de Antonella Trombadore
Options d'affichage
PROJECT MANAGEMENT APPROACH
Defining the Project
Planning the Project
Actions Planning
Team
Communication
Budget
Timing
Editing
WBS
Scope
Objectives
Deliverables
Risk analysis
Milestones
Triple constraint
Stakeholder analysis
Team 1 -PM
Idea-sponsor
Leader PM


Souha Ferchichi - MED...
souha Ferchichi - MED...
Hatem Labidi (MEDREC)
Gisella Calcagno
Hayam Ahmed
Vous regardez actuellement l'écran de Antonella Trombadore
Options d'affichage
PROJECT MANAGEMENT APPROACH: phase 1.3 Initiation
Involvement
10
HEADTEACHER
PART-TIME TEACHER
PARENTS
CHAIR OF GOVERNORS
DEPUTY HEAD
ADMIN 2
LSA
ADMIN 1
SMT
GOVERNING BODY
FULL-TIME TEACHING STAFF
-5
Against
0
For
+5
KEY: SIZE OF CIRCLE = DEGREE OF INFLUENCE ON CHANGE

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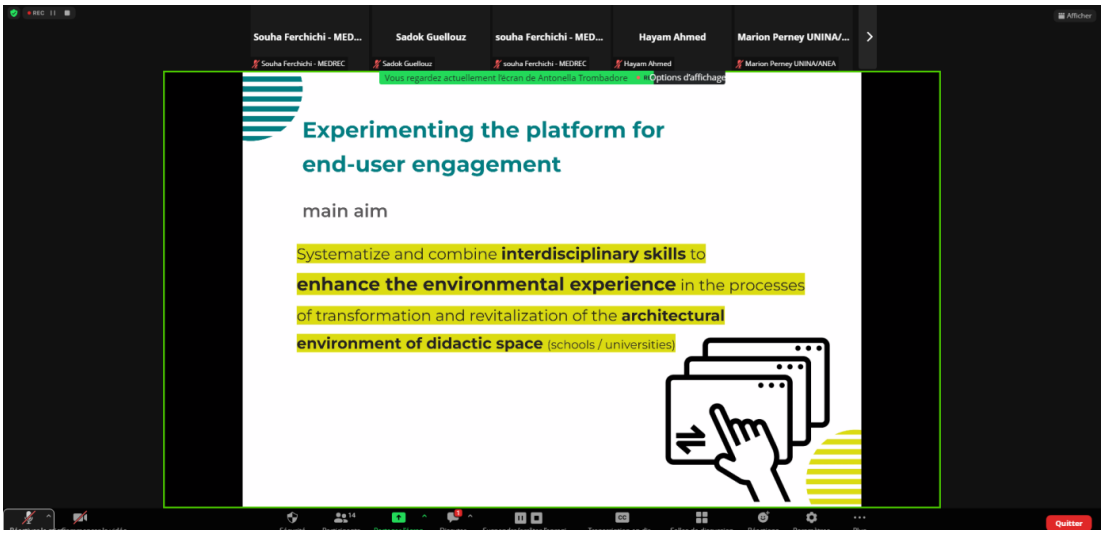
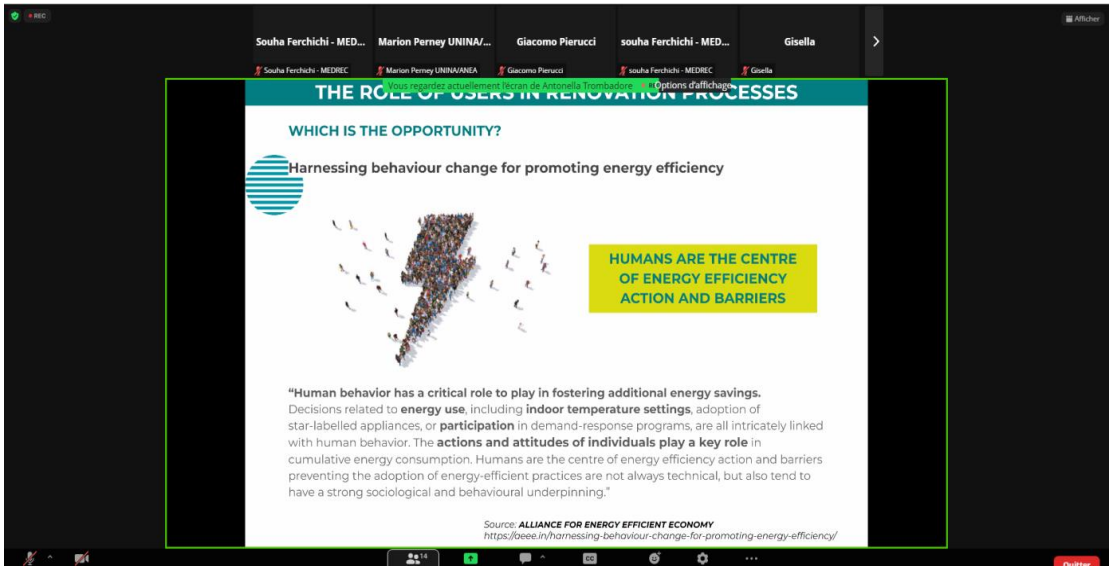
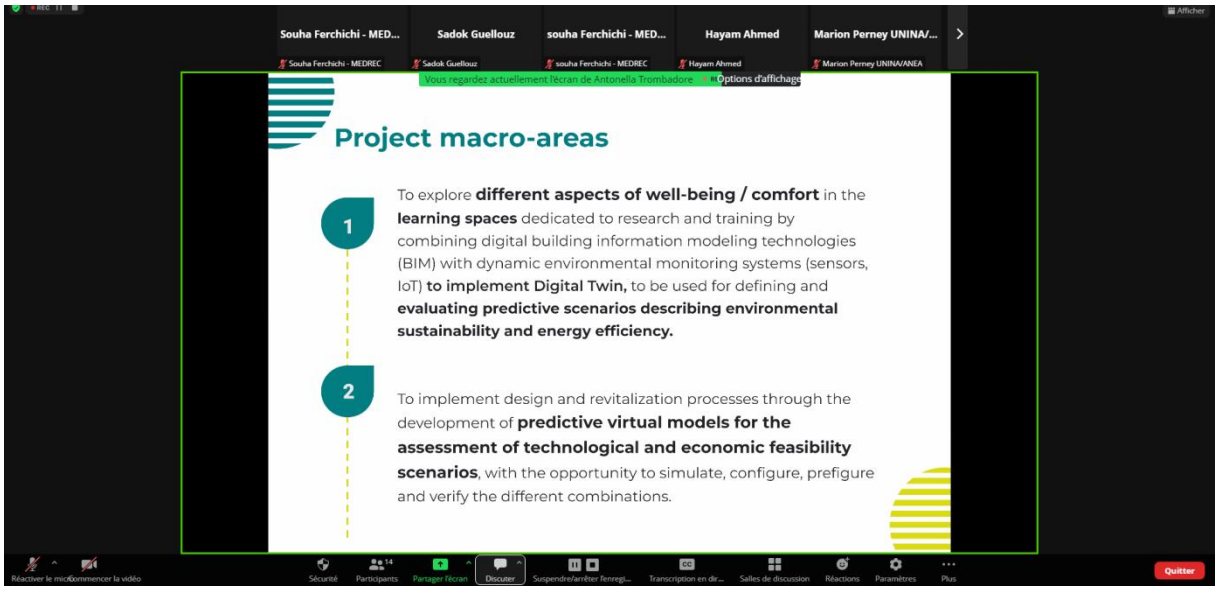
Session 12: Training on Med-EcoSuRe project outcomes

- *Tool of retrofit solutions*
- *Living Lab establishment*
  - ***Users Engagement in Energy Rehabilitations: from knowledge to awareness to pro-active behaviors***
  - ***Analyzing Indoor Environmental Quality to valorise users' comfort***

Date: 02 November 2022



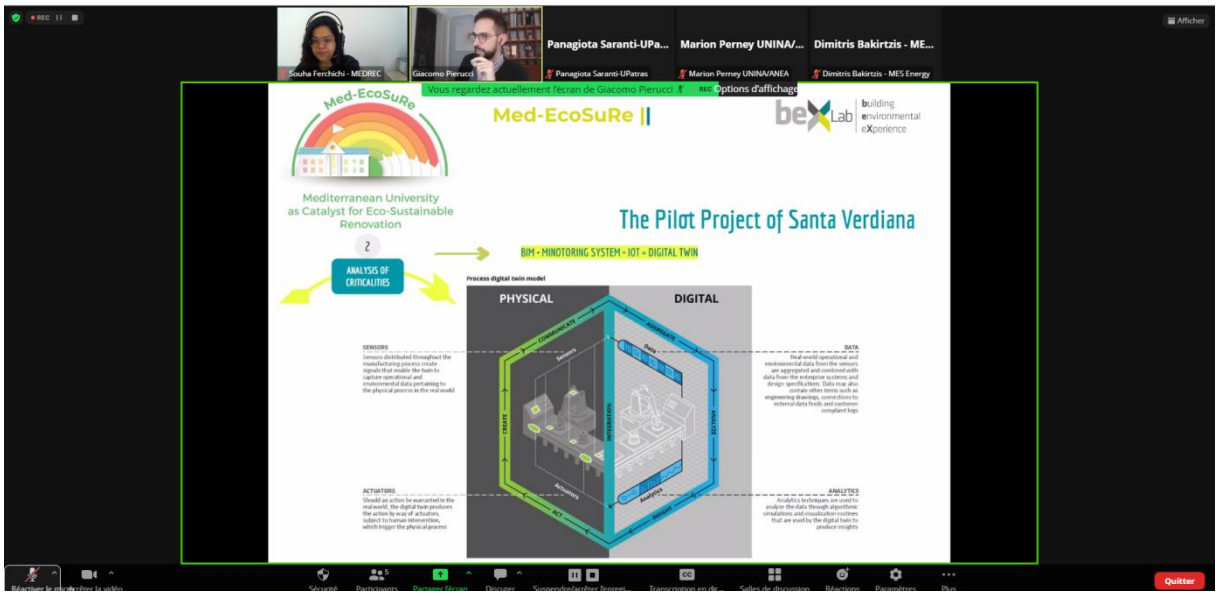




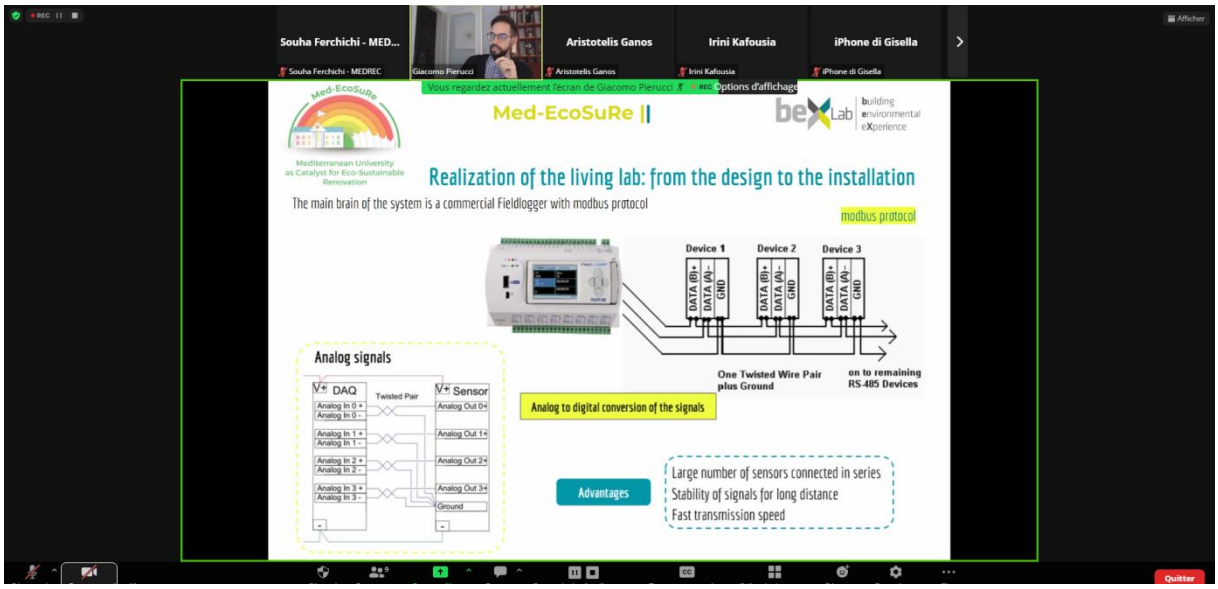
Session 13: Training on Med-EcoSuRe project outcomes

- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - ***Quantitative and Qualitative Monitoring Protocols and Data Management***
  - ***Considering LCA (Life Cycle Analysis) in the renovation process***

Date: 03 November 2022



Irini Kafousia
iPhone di Gisella
Dimitra Chondrogianni
Med-EcoSuRe
Realization of the living lab: from the design to the installation
Sensors
✓ Temperature and Relative Umidity (6)
✓ CO_2 (air quality) (1)
✓ Globothermometer (1)
✓ External irradiance (2)
✓ Inside-Outside pressure difference (2)
✓ Internal Lighting level (2)
✓ Wall temperature (16)
✓ Thermal flux through walls (16)
✓ Occupancy (2)
✓ Magnetic switch for windows and doors (5)
✓ Weather station
Auxiliary
✓ Energy Suppliers
✓ Signals converters
✓ wiring
✓ Electrical conduits and boxes


Souha Ferchichi - MED...
Aristotelis Ganos
Irini Kafousia
iPhone di Gisella
Med-EcoSuRe
Realization of the living lab: from the design to the installation
The main brain of the system is a commercial Fieldlogger with modbus protocol
modbus protocol
Device 1
Device 2
Device 3
One Twisted Wire Pair plus Ground
on to remaining RS-485 Devices
Analog signals
DAQ
Sensor
Twisted Pair
Analog to digital conversion of the signals
Advantages
Large number of sensors connected in series
Stability of signals for long distance
Fast transmission speed

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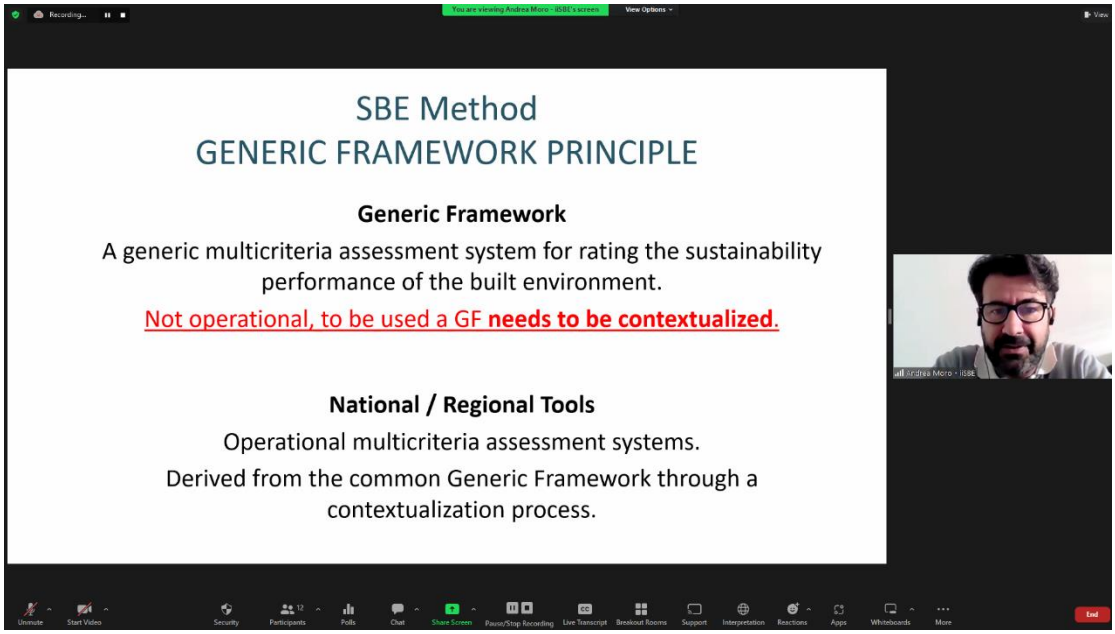
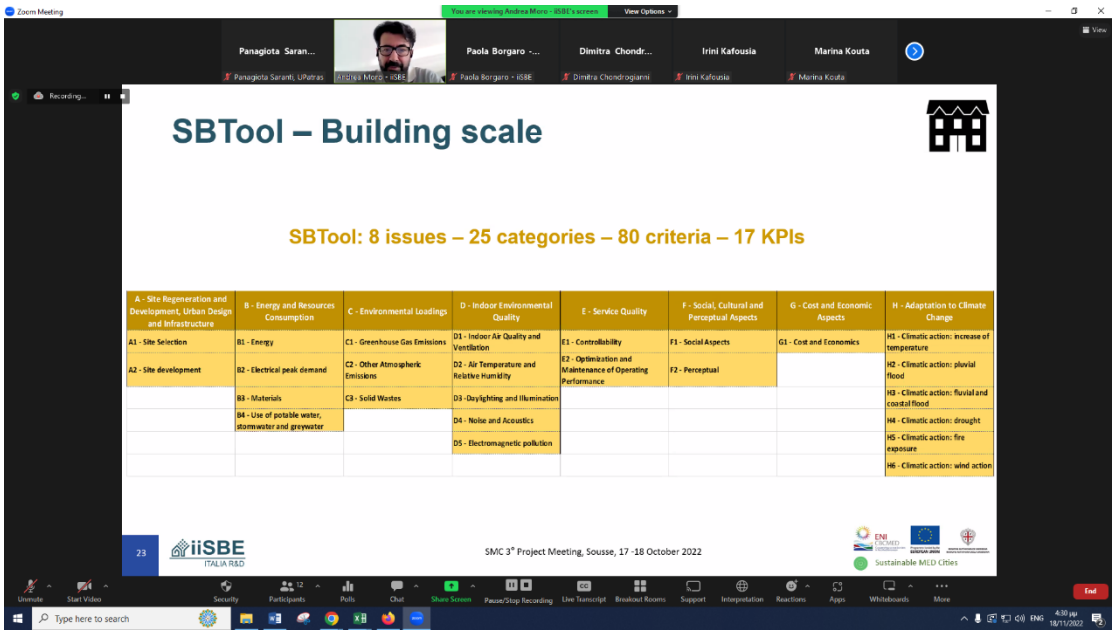
SEACAP 4 SDG

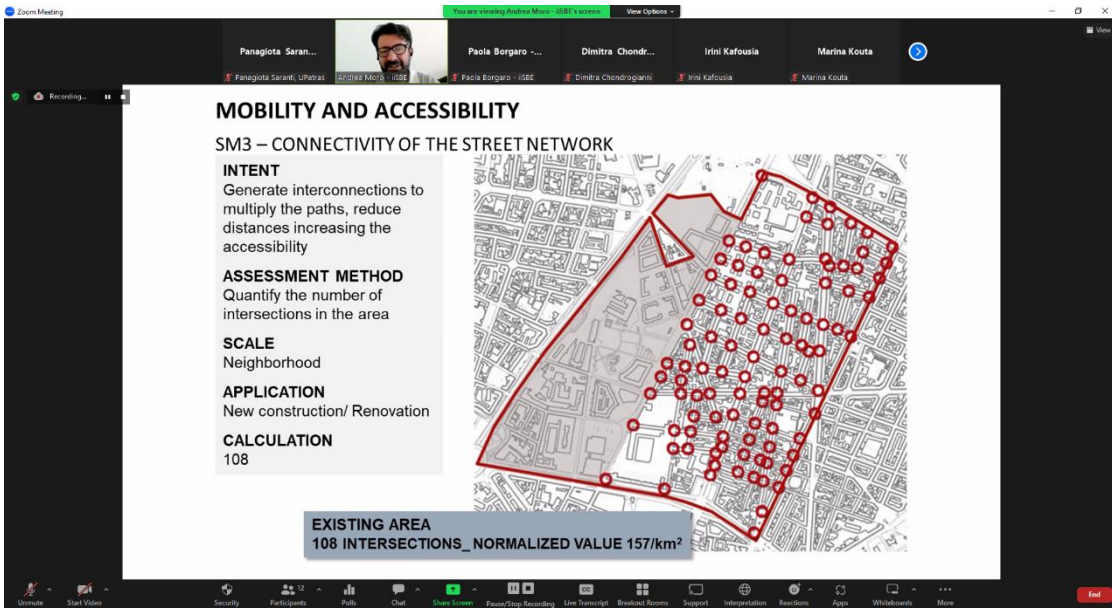
Session 14: Training on Sustainable MED Cities project outcomes

- *Online platform enabling municipalities to generate contextualised tools for any MED city*
- *Decision-making methodology to be adopted when applying the tools*

Date: 18 November 2022



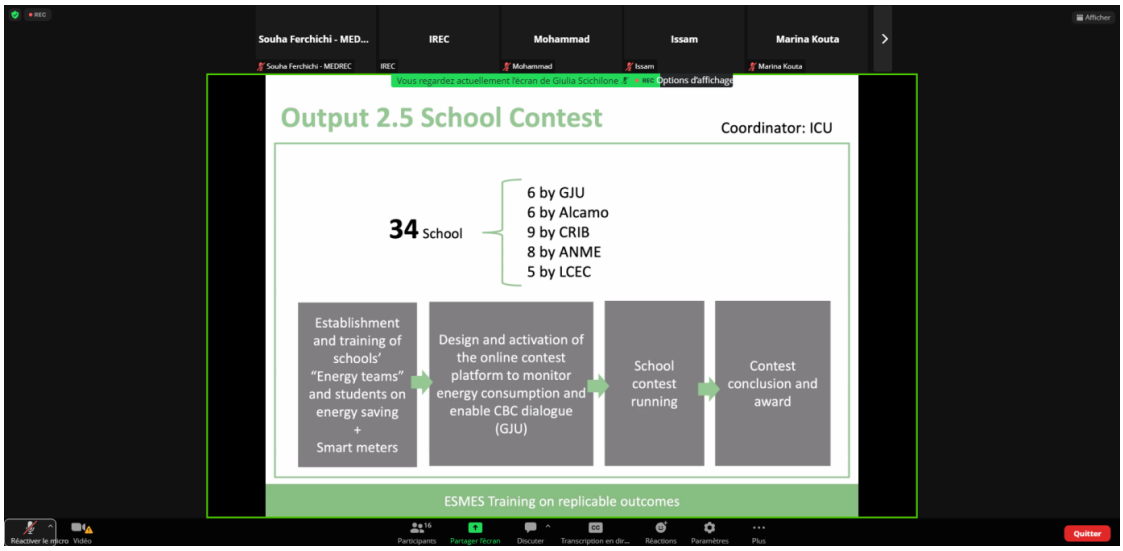


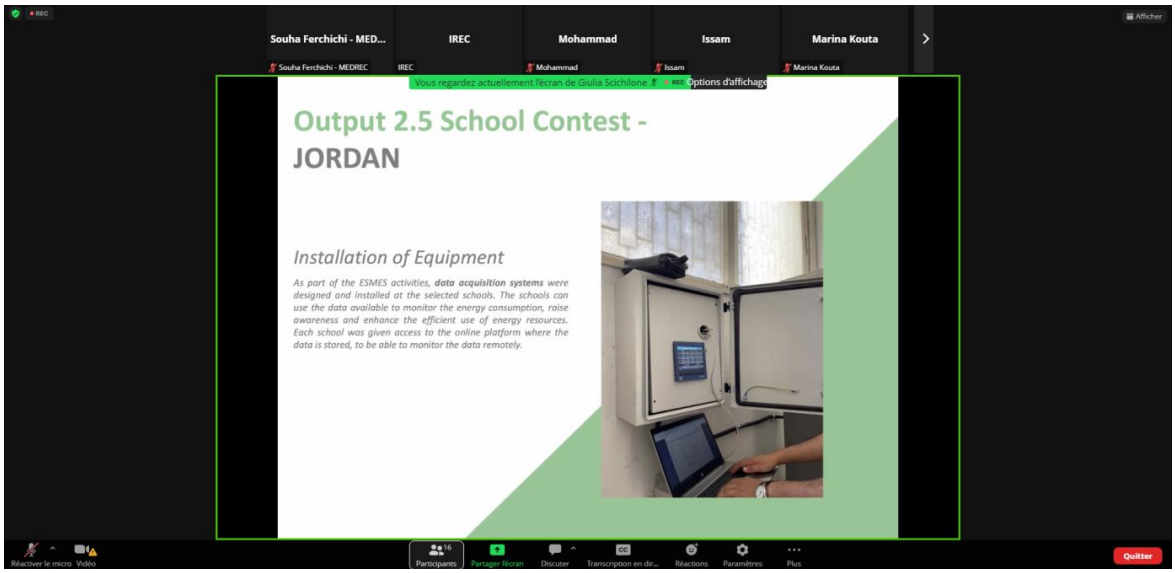


Session 15: Training on ESMES & STEPPING projects outcomes

- ***ESMES : CONTEST of 34 schools***
- ***STEPPING: MEDITERRANEAN EPC Guidelines***
- ***STEPPING: EPC training package***

Date: 24 November 2022



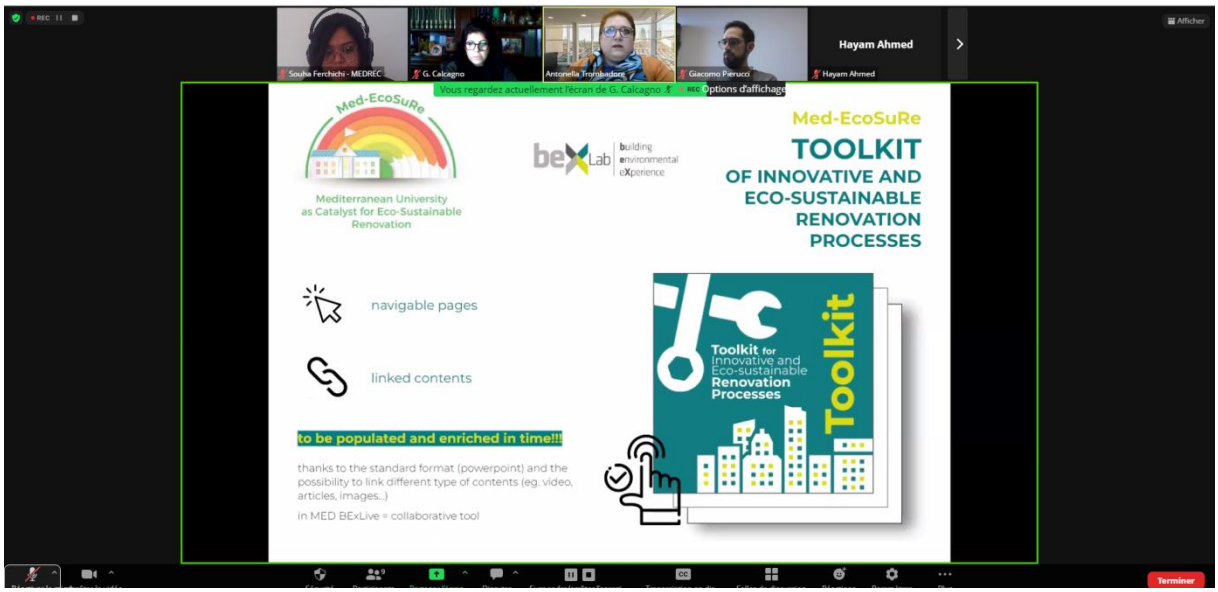

Souha Ferchichi - MED...
IREC
Mohammad
Issam
Marina Kouta
Output 2.5 School Contest -
JORDAN
Installation of Equipment
As part of the ESMES activities, data acquisition systems were designed and installed at the selected schools. The schools can use the data available to monitor the energy consumption, raise awareness and enhance the efficient use of energy resources. Each school was given access to the online platform where the data is stored, to be able to monitor the data remotely.

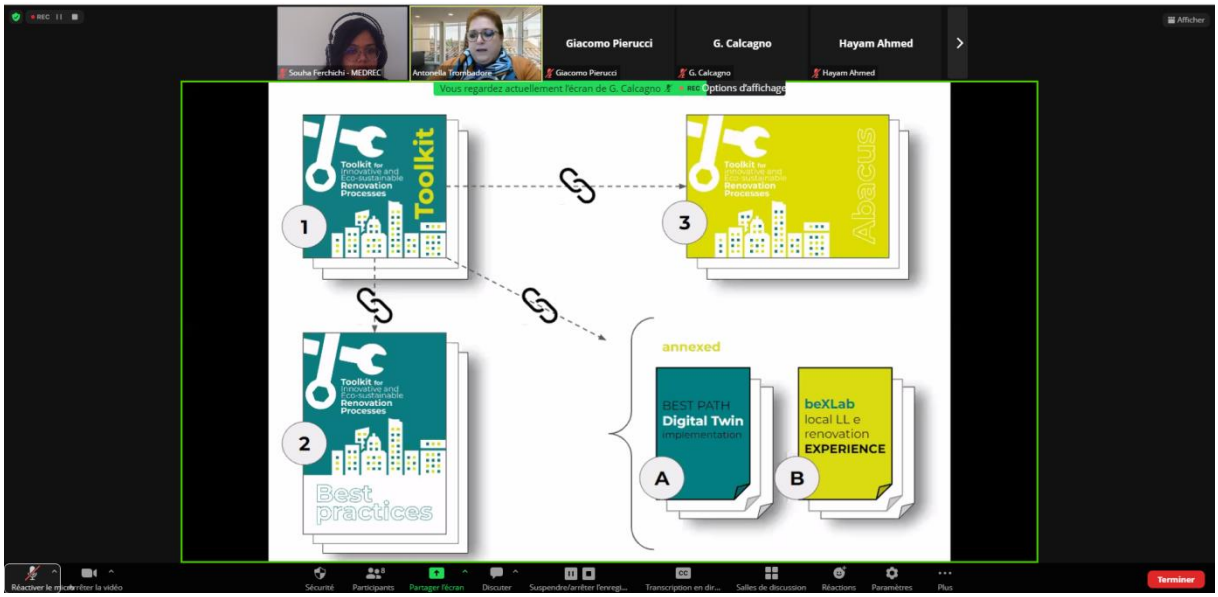
Souha Ferchichi - MED...
Harry Xiarchis
RSS
IREC
Interreg
Mediterranean
STEPPING PLUS
Presentation of the outputs developed by STEPPING
24 November – SECAP project training - STEPPING
REGIONE PIEMONTE

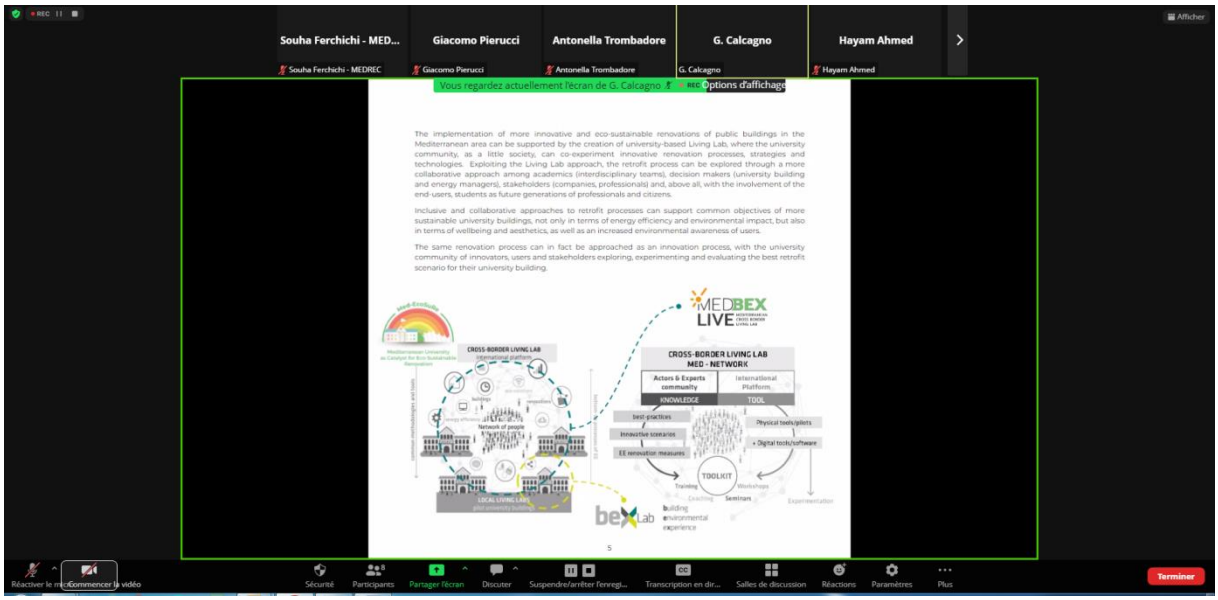
Session 16: Training on Med-EcoSuRe project outcomes

- *Tool of retrofit solutions.pdf*
- *Living Lab establishment*
  - ***Action Plan in a real case study: simulation of the Living Lab setting up and implementation***

Date: 05 December 2022






Souha Ferchichi - MED...
Giacomo Pierucci
Antonella Trombadore
G. Calcagno
Hayam Ahmed
Vous regardez actuellement l'écran de G. Calcagno
Options d'affichage
CROSS-BORDER LIVING LAB
MEDBEX LIVE
CROSS-BORDER LIVING LAB MED - NETWORK
Actors & Experts community
International Platform
KNOWLEDGE
TOOL
TOOLKIT
Terminer

Annex 4 SLIT Training Agenda

Cross-Border training
2 sessions: 23 and 26 January 2023

Time (CET)	Topics	Speaker(s)
	Session 1	
10:00 – 11:00	**Introduction to SEACAPs**: • Overview on SEACAP/SEAP/Climate-Energy action plans principle • Process: initiation, planning, implementation, monitoring	University of Patras
11:00 – 12:30	**SEACAP Living lab** • Framework • Approach • Members • Governance • Structure • Implementation phases	University of Patras & MEDREC
	Session 2	
10:00 – 11:00	**Involvement and engagement of stakeholders and citizens through a Living Lab** (A topic to be addressed in the Energy efficiency mix plan & Roadmap to implement the most cost-effective technologies for EE and RE in the selected demonstrators) *Templates to be provided: questionnaires , expression of interest* **Key Performance Indicators (KPI) measuring the impact of the Living Lab**	University of Patras & MEDREC

Annex 5 SLIT Training Material

SEACAP 4 SDG

Training of SLIT
How to develop and implement a SEACAP through a Living lab

Introduction to SEACAPs

Panagiota Saranti – University of Patras (UPatras)

January 23rd 2023

Summary

SEACAP 4 SDG

- FROM SEAP TO SEACAP
- WHAT IS A SEACAP
- SEACAP MAIN SECTIONS
- SEACAP KEY SECTORS
- SEACAP PROCESS
- CLOSING REMARKS

SEACAP 4 SDG

FROM SEAP TO SEACAP

The evolution of the Covenant of Mayors

SEACAP 4 SDG

FROM SEAP TO SE(A)CAP

The 3 pillars of the Covenant of Mayors in Europe

MITIGATION	ADAPTATION	ENERGY
Accelerating the decarbonisation of their territories	*Strengthening their capacity to adapt to unavoidable climate change impact*	*Allowing their citizens to access secure, sustainable and affordable energy*

'-40% by 2030' + 'more resilient cities' + 'address Energy Poverty'

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FROM SEAP TO SE(A)CAP

- Signatories of the Covenant of Mayors for Climate and Energy have committed to prepare and implement a Sustainable Energy and Climate Action Plan (SEACAP) before 2030 (Europe)
- From October 2015 only SEACAP's are allowed

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FROM SEAP TO SE(A)CAP

SECAP includes:

- an assessment of the geographical, demographical and energy local context,
- a baseline CO2 Emission Inventory (BEI)
- a clear identification of the emissions reduction target
- the actions planned together with time frames, assigned responsibilities

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FROM SEAP TO SE(A)CAP

Thus, the SEACAP retains the same outline procedure used for SEAPs but differs in:

- **Target**: - 40% of CO_2 emissions;
- **Timeframe**: a SEACAP is expected to achieve the objective of 40% reduction by the year 2030;
- **Development time**: a SE(A)CAP has to be submitted within two years of joining the Covenant.

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The origins of the Covenant of Mayors for the Mediterranean (CoM Med)

- The Covenant of Mayors for the Mediterranean is an initiative funded by the European Union (EU) that brings together and supports **Mediterranean local governments in their fight against climate change.**
- It is a voluntary based initiative that allows cities to define and meet ambitious and realistic targets set by themselves **in line with the Global Covenant of Mayors (GCoM) requirements and their National Determined Contributions (NDCs).**
- While incorporating local climate actions and facilitating to this end collaboration among a wide range of **regional, national, funding and non-state actors,** it also supports partnerships and win-win cooperation between cities.

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What is a Sustainable Energy Access and Climate Action Plan?

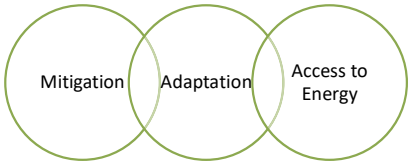
- The SEACAP is a key document that sets the **strategies, plans and actions** for a sustainable and low emission development pathway, while including adaptation actions and ensuring access to secure, affordable and sustainable energy, in response to the current and future impacts of climate change in the region.
- The SEACAP is both a strategic and an operational document.

SEACAP 4 SDG

What is a Sustainable Energy Access and Climate Action Plan?

The SEACAP defines concrete measures for **climate mitigation**, **adaptation and access to sustainable energy**, with timeframes and assigned responsibilities, translating the long-term strategy into action.

The 3 SEACAP Pillars



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What is a Sustainable Energy Access and Climate Action Plan?

It uses the results of a **Baseline Emissions Inventory (BEI)** to identify the best fields of action and opportunities for reaching the local authority's greenhouse gas (GHG) emission reduction targets

SEACAP 4 SDG

What is a Sustainable Energy Access and Climate Action Plan?

It uses the results of a **Risk and Vulnerability Assessment (RVA)**, which identifies the city's most relevant climate hazards and vulnerabilities, to identify actions for reducing a city's risks to the impacts of climate hazards

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What is a Sustainable Energy Access and Climate Action Plan?

It uses the results of an **Access to Energy Assessment (AEA)**, which assesses energy use, to identify actions to improve access to secure, sustainable, affordable and reliable energy.

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SEACAP MAIN SECTIONS

1. VISION
2. CONTEXT ANALYSIS
3. BEI/MEI
4. CO_2 EMISSION REDUCTION OBJECTIVES
5. MITIGATION ACTIONS
6. RISK AND VULNERABILITY ASSESSEMENT
7. ADAPTATION ACTIONS

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SEACAP Key Intervention Sectors

- **M**unicipal buildings, equipment and facilities
- **T**ertiary (non-municipal) buildings, equipment and facilities
- **R**esidential buildings
- **T**ransport

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The SEACAP Process

SEACAP 4 SDG

Initiation

Activities in this phase include:

Affirming political commitment to the SEACAP development process from the ***heads of the municipality and the national government;***

Mobilising and engagement of all ***municipal departments and stakeholders involved.***

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Planning

Activities in this phase include:

Pre-assessment phase

SEACAP development phase

- Developing a Baseline Emissions Inventory (BEI);
- Developing a Risk and Vulnerability Assessment (RVA);
- Developing an Access to Energy Assessment (AEA).

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Pre-assessment phase of Planning (1/2)

Baseline Emission Inventory (BEI)

- Measures and quantifies the emissions of three sources: stationary energy, waste and transportation.
- This is the baseline report for the mitigation pillar

Risk and Vulnerability Assessment (RVA)

- Identifies which climate hazards are affecting a local government and indicates which sectors and populations groups are being most affected by those climate hazards.
- This is the baseline report for the adaptation pillar.

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Pre-assessment phase of Planning (2/2)

Access to Energy Assessment (AEA)

- Assesses the status of energy access in the local government under two broad categories: access to electricity (and clean cooking) in households and access to electricity in public buildings.
- This is the baseline report for the access to energy pillar.

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SECAP Develop phase of planning

Activities in this phase include:

- *Setting adaptation, mitigation and access to energy* ***targets.***
- *Developing adaptation, mitigation and access to energy* ***actions*** *to achieve these targets.*
- *Including the results of the pre-assessment phase (BEI, RVA and AEA) and the targets and action set in the planning phase into one document – the SEACAP.*

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Implementation

Activities in this phase include:

Implementing the actions included in the SEACAP, starting with the ones identified as priority in the planning phase.

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Steps in the SEACAP Pillars

Mitigation Pillar:	Adaptation Pillar:	Access to Energy Pillar:
BEI	RVA	AEA
Mitigation Targets	Adaptation Targets	Energy Targets
Mitigation Actions	Adaptation Actions	Energy Actions

↓

FULL SEACAP

SEACAP 4 SDG

Closing remarks

A well-designed SEACAP, developed in collaboration with **local stakeholders and the community**,

- **provides local governments** with political visibility
- helps to **improve the local governments**' image
- helps to reduce **their energy consumption costs**
- helps to reduce **impacts related to CO2 emissions**.

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Closing remarks

- Citizens will benefit from the reduction of the health and safety impacts of energy consumption and its related CO2 emissions.
- The SEACAP makes the **city more attractive to international donors and investors,** when good financial figures are included for the implementation of the identified actions.

The SEACAP should consolidate and integrate existing initiatives. SEACAP should be a natural extension of the ongoing activities and measures.

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Thank you for your attention

Panagiota Saranti – University of Patras (UPatras)

SEACAP 4 SDG

Training of SLIT
How to develop and implement a SEACAP through a Living lab

SEACAP Living Lab

Souha Ferchichi - Mediterranean Renewable Energy Centre (MEDREC)
Panagiota Saranti – University of Patras (UPatras)

January 23rd 2023

SEACAP 4 SDG

WP4 -Transferring knowledge and strengthening multilevel governance through Living Lab and training

WP coordinator: PP2
Involved partners: Applicant, PP1, PP3, PP4, PP5, PP6, PP7, PP8
Contribution to the selected Programme Expected result(s) 4.3.1

- ***Expected Result 4.3.1:*** *Enhanced capacity of public institutions to plan and implement sustainable energy policies and measures with regard to public buildings*

Layout

SEACAP 4 SDG

01 Living Labs definition and concept

02 SEACAP LL: approach and methodology of establishment

03 SEACAP LL setup phases

04 Local LL examples: Greece and Tunisia

LL Concept

SEACAP 4 SDG

- The Living Lab concept is based on a systematic user **co-creation** approach integrating research & innovation processes.
- These are integrated through **co-creation, exploration, experimentation & evaluation** of innovative ideas, scenarios, concepts and related technological artefacts in real life use cases.

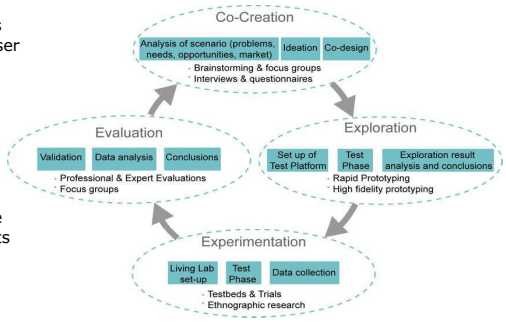

Figure 1: A visual representation of the Living Lab process (Vicini, Bellini, Sanna, SMART 2012)

LL Concept

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Living Labs ≡ Multi-stakeholder organization set-up to carry out innovation projects that follow the principles of open and user innovation and focus on real-life experimentation.

Principles of the LL approach:

- Multi-method approaches
- Multi-stakeholder participation (user engagement)
- Real life setting
- Co-creation

LL Concept

SEACAP 4 SDG

Living Labs ≡ Multi-stakeholder organization set-up to carry out innovation projects that follow the principles of open and user innovation and focus on real-life experimentation.

Learn from each other
Exchange of lessons learned

Principles of the LL approach:

- Multi-method approaches
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- Co-creation

Phased objectives for the networks of living labs

LL Concept

SEACAP 4 SDG

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Exchange of lessons learned

Harmonization & integration
Introduce similar tools & methods

Principles of the LL approach:

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Phased objectives for the networks of living labs

LL Concept

SEACAP 4 SDG

Living Labs ≡ Multi-stakeholder organization set-up to carry out innovation projects that follow the principles of open and user innovation and focus on real-life experimentation.

Learn from each other
Exchange of lessons learned

Harmonization & integration
Introduce similar tools & methods

Joint projects
Setting up & conducting combined projects

Principles of the LL approach:

- Multi-method approaches
- Multi-stakeholder participation (user engagement)
- Real life setting
- Co-creation

Phased objectives for the networks of living labs

SEACAP Living Lab scope

SEACAP 4 SDG

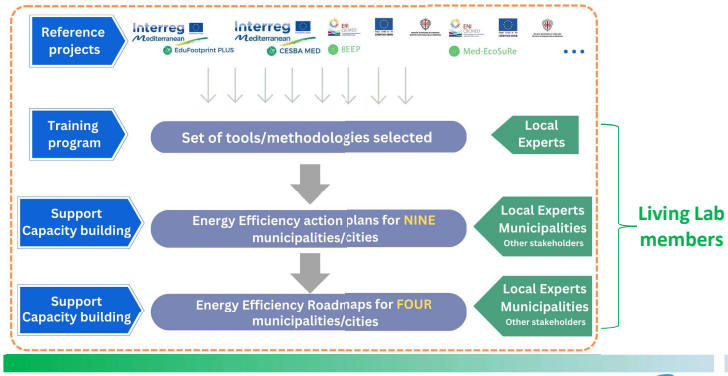
*The SEACAP 4 SDG Living Lab (SLL) will introduce innovative **socio-economic tools**, with the creation of novel **user-oriented** solutions, and **financial mechanisms**, to support the cost-effective energy rehabilitations of public buildings across the Mediterranean, preferably focussing on **health** and **educational** buildings.*

*SLL's philosophy is to turn users, from subjects testing modules against requirements, into value creators contributing to the **exploration of emerging ideas, breakthrough scenarios and innovative concepts.***

SLL Scheme

SEACAP 4 SDG

LIVING LAB



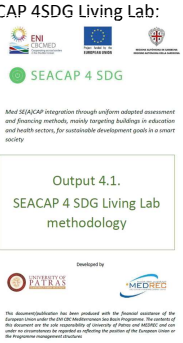
SLL Methodology

SEACAP 4 SDG

Based on past experiences/initiatives ➡ Methodologies of SEACAP 4SDG Living Lab:
Structure, Governance, Management, and Exploitation

Table 1Different perspectives on LLs (Compagnucci et al., 2020)

Definition	Sources
LLs include "a research methodology for sensing, prototyping, validating and refining complex solutions in multiple and evolving real-life contexts"	Eriksson et al. (2005)
An LL is "an experimentation environment in which technology is given shape in real-life contexts and in which (end) users are considered 'co-producers'"	Ballon et al. (2005)
An LL represents "an R&D methodology where innovations, such as new services and products, or application enhancements, are created and validated in collaborative, multi-contextual, empirical, real-world environments within individual regions"	de Leon et al. (2006)
LLs "are experimentation and validation environments characterized by early involvement of user communities, closely working together with developers and other stakeholders, and driving rapid cycles of ICT-based innovations"	Schaffers and Kulkki (2007)
LLs are "collaborations of public-private-civic partnerships in which stakeholders co-create new products, services, businesses and technologies in real-life environments and virtual networks in multi-contextual spheres"	Feurstein et al. (2008)
An LL is an innovation intermediary community which shares the view of a user innovation approach	Ståhlbrost and Bergvall-Kåreborn (2008)
An LL consists of a social configuration which is arranged for innovation creation by contact, communication and collaboration	Dutilleul et al. (2010)
An LL is an enhancement or implementation of public and user involvement, such as a public-private-people partnership (4Ps or quadruple helix)	Arnkil et al. (2010); Ferrari et al. (2011); Molinari (2011)
LLs are "open innovation intermediaries that seek to mediate between users, research, and public and private organizations, (and to) advance our concept of technology transfer by incorporating not only the user-based experimentation, but also by engaging firms and public organizations in a process of learning and the creation of pre-commercial demand"	Almirall and Wareham (2011)



SLL Timeline

SEACAP 4 SDG

	2022						2023								
	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Mai	Jun	July	Aug	Sep
Phase 1 - Connect and self-assessment															
Phase 2.a - Educate and plan: Training on SRP outcomes															
Phase 2.b - Educate and plan: Training on SLL methodologies															
Phase 3.a – Implement Level 1 demonstrator															
Phase 3.b – Implement Level 2 demonstrator															
Phase 4.a – Improve and Evaluate: Feedbacks on the adoption of SRP															
Phase 4.b – Improve and Evaluate: Evaluation of the SLL process															
Phase 5.a – Dissemination															
Phase 5.b – Capitalization & Mainstreaming															

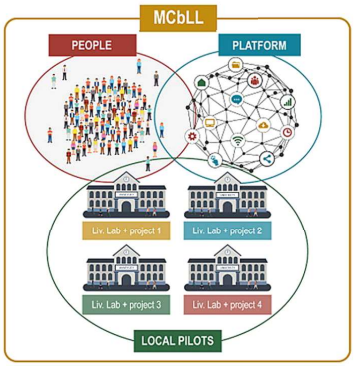
SLL Timeline

SEACAP 4 SDG

SEACAP LL phases	Start	End	Outputs
Phase 1 - Connect and self-assessment	**01/07/2022**	**31/12/2022**	**Structure and Governance of LL defined** **Members identified (internal and external)**
Phase 2.a - Educate and plan Training on SRP outcomes	10/10/2022	19/12/2022	Project partners + external experts trained on SRP outcomes
Phase 2.b - Educate and plan Training on SLL methodologies	23/01/2022	15/02/2023	*SLIT trained on SLL methodologies: cross-border Level * Local community (experts and cities) trained on SLL methodologies: Local level
Phase 3.a – Implement Level 1 demonstrator (WP5)	09/01/2023	30/03/2023	Energy mix Efficiency plans
Phase 3.b – Implement Level 2 demonstrator (WP5)	01/03/2023	31/05/2023	Roadmaps of cost-effective technologies for the selected buildings
Phase 4.a – Improve and Evaluate Feedbacks on the adoption of SRP outcomes and of selected EE solutions	01/02/2023	31/03/2023	Reports on the adoption of SRP outcomes and of selected EE/RE solutions; to be integrated in the Energy Efficiency mix plan
Phase 4.b – Improve and Evaluate Evaluation of the SLL process	01/06/2023	30/06/2023	*SLL evaluation report * Handbook of SLL best practices
Phase 5.a – Dissemination	01/04/2022	31/09/2023	Printed and digital communication material
Phase 5.b – Capitalization & mainstreaming (WP6)	01/07/2023	15/09/2023	Adoption of the energy efficiency action plans Capitalization of results for mainstreaming

Structure of the SLL

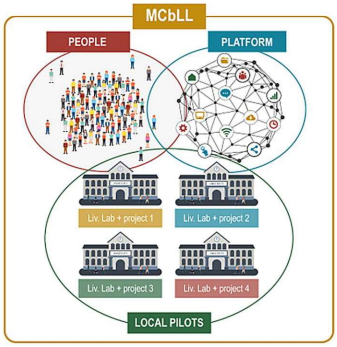
SEACAP 4 SDG



Source: University of Florence – Department of Architecture (DIDA)

Structure of the SLL

SEACAP 4 SDG



Network of People

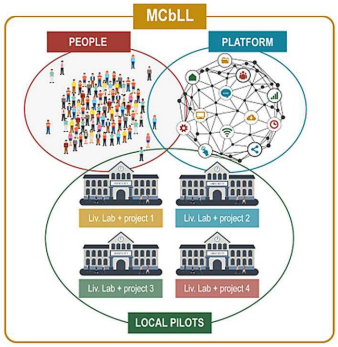
All the actors involved in SEACAP4SDG project are active members of the network.

Network ≡ Collaboration

- **Collaboration arrangements (e.g. business models, partnership agreements)**
- **Tools to support collaboration and communication**

Structure of the SLL

SEACAP 4 SDG



International Platform

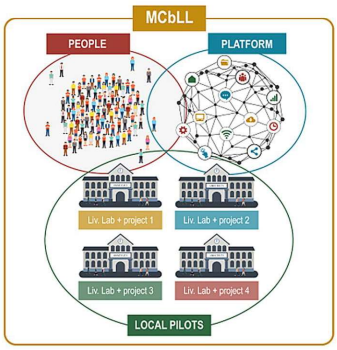
Virtual place of the LL to share knowledge and eco-solutions .

Supported by a common data repository to share :

- **Existing methodologies and technologies**
- **Outputs, implementing training and coaching paths.**

Structure of the SLL

SEACAP 4 SDG



Physical/ local pilots

Places for the physical setting up of Local Living Labs

LLLs will experiment a participative approach

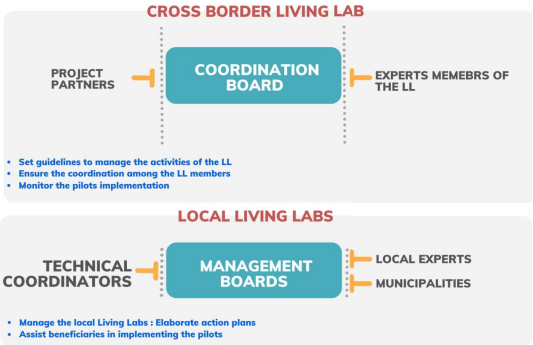
- Facilitate the twinning and knowledge sharing among local actors
- Encourage a proactive end-user behaviour
- Share, promote and implement best practices enriching the whole network

Governance of the SLL

SEACAP 4 SDG

Governance of the SLL

SEACAP 4 SDG



Governance of the SLL

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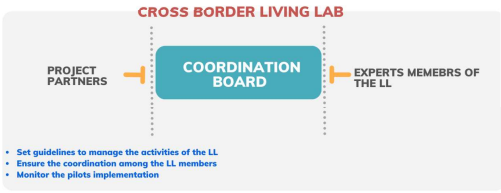
Partners + Stakeholders



Fostering the aims and objectives of the LL actions
Coordinating and planning the LL meetings' agenda
Stimulating and implementing the involvement of main stakeholders
Stimulating and implementing networking activities and project impact

Governance of the SLL

SEACAP 4 SDG

Partners

LOCAL LIVING LABS

TECHNICAL COORDINATORS | MANAGEMENT BOARDS | LOCAL EXPERTS | MUNICIPALITIES

- Manage the local Living Labs : Elaborate action plans
- Assist beneficiaries in implementing the pilots

The implementation of the innovation process within the pilots (services, tools, technologies, monitoring and protocols...)

Adoption of an approach which includes analysis of pre-measurements and diagnostics already carried out, exploration and testing of proposed tools, and an assessment of potential interventions...

SLL Members

SEACAP 4 SDG

Cross Border Coordination Board

- **1** Beneficiary partner member and/or associate partner member
- Up to **4** experts identified as external members of the LL/stakeholders (expression of interest) and/or from the advisory committee

Local/operational Board

- **1** coordinator: 1 beneficiary partner member
- **2** to **4** external members in each partner country/region (external expert, municipalities...)

SLL Members

SEACAP 4 SDG

SLL expression of interest

Below are seven ways you can get involved in the Living Lab activities. Please choose the most suitable one(s) according to your profile and interest *

- Participate to dissemination activities including forums, workshops and public events
- Engage in an effective public building stock renovation strategy
- Work jointly with the research groups on developing and commercializing innovative solutions for public ...
- Take part of national focus groups and cross border network groups to propose innovative sustainable r...
- Autre...

Would you be interested in signing an agreement to join the Living Lab community ? *

- Yes
- No

JOIN US

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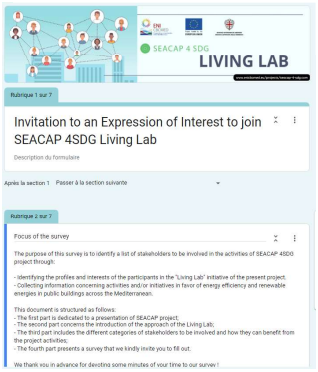

SLL Members

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Stakeholders Matrix

Institutional decision makers

Will be able to exert significant leverage on improving EE in public buildings

National and regional energy management authorities

replicating the good practices and pilot initiatives, will use the tools and solutions proposed in the framework of the project.

Building/Energy managers

Will be part of national focus groups and cross border network groups in charge of proposing innovative sustainable renovation concepts suitable for different categories of public buildings.

Socio-economic operators

Will work jointly with the research groups on developing and commercializing innovative solutions for building renovation and construction.

End users

Special type of stakeholders, requiring a targeted involvement and communication.

Engaged, with interviews and questionnaires , to detect their perception of wellbeing and indoor comfort quality , before and after intervention

SEACAP 4 SDG

- Participate to dissemination activities including forums, workshops and public events
- Engage in an effective public building stock renovation strategy
- Take part of national focus groups and cross border network groups to propose innovative sustainable renovation concepts suitable for public buildings
- Work jointly with the research groups on developing and commercializing innovative solutions for public buildings

SEACAP 4 SDG

SLL members form

		Cross border Coordination Board	Local Management Boards
France	BEN: Nice Cote d'Azur Metropolis, representing Euromed Cities Network		
Belgium	ASS01: Cobaty International		
	ASS08: Agencia para a Energia (ADENE)		
Portugal	ASS10: Agence Locale de l'Energie et du Climat Métropole Marseille (ALEC)		
Egypt	PP1: Arab Academy for Science, Technology & Maritime Transport		
	ASS07: Palestinian Energy and National Resources Authority		
Palestine	ASS19: City of Dura		
Greece	PP2: University of Patras – Special Account for Research Grants	**Panagiota Saranti** **Yorgos Stephanedes**	**Panagiota Saranti** **Yorgos Stephanedes** **ChrysoulaChristia (Municipality of Aigialeia)** **George Stavrakakis (MES Energy)**
Cyprus	ASS02: University of Cyprus (Foss Research Center for Sustainable Energy)		
	ASS11: Region of Western Greece (RWG)		
	ASS12: Region of Peloponese		
Italy	PP3: Naples Agency for Energy and Environment		
	ASS03: Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici (CMCC)		
	ASS13: Piemonte Region		
	ASS14: Italian Network of Local Energy Agencies (RENAEL)		
Jordan	PP4: Royal Scientific Society		
	ASS04: Jordan University of Science and Technology (JUST)		
Lebanon	PP5: Lebanese Center for Energy Conservation	**Sorina Mortada** **Joseph Al Assad** **Mohammad Hijazi** **Myriam Osman (external company EEG)**	**Sorina Mortada** **Joseph Al Assad** **Mohammad Hijazi** **Myriam Osman (external company EEG)**
	Associate 5: Ministry of Energy and Water - Lebanon (MEW)		

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SLL members form

Spain	PP6: Catalonia Institute for Energy Research	Jordi Pascual Emilio Hernando	Jordi Pascual Emilio Hernando - Expected assistants: *External entity: ERF Carla García *Municipality: Lloret de Mar (to be confirmed)
	PP7: Valencia Institute of Building	Borja Pallas Vázquez Lucía Ramírez Pareja	Borja Pallas Vázquez Lucía Ramírez Pareja - Expected assistants: *External entity: Azigrene *Municipality: Sax (to be o
	ASS15: Istitut Català d'Energia	Josep Maria Granollers Marta Chàfer	
	ASS16: Area Metropolitana de Barcelona (AMB)		
	ASS17: Generalitat Valenciana		
	ASS18: Valencian Federation of Municipalities and Provinces	Irene GisbertVillena Gonzalo Albir López	
Tunisia Morocco Algeria	PP8: Mediterranean Renewable Energy Centre	Souha Ferchichi	Souha Ferchichi - MEDREC Ines Khalifa- MEDREC Hatem Labidi- MEDREC Houda El Oukabi – Municipality of Bizerte Imen Landoulsi – external entity
	ASS06: Agence Marocaine pour l'Efficacité Energétique (AMEE)		
	ASS09: Energy Cities Algeria Association		
	Experts identified through the expression of interest		Béchir Riahi – Association Edifices et Mémoires - Tunisia
	Experts from the advisory committee		

SEACAP 4 SDG

Self-assessment tool

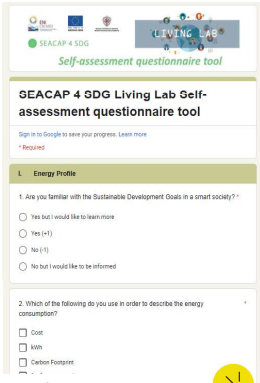
Questionnaire to be sent to stakeholders in order identify the social needs and self-assess current knowledge on existing best practises within their organisation.

Why use it?

Identify potential needs and levels of knowledge.

Prioritize of need to be educated in specific practices.

Help to specify level of difficulty in setting up LLL...



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SLL Timeline

SEACAP 4 SDG

SEACAP LL phases	Start	End	Outputs
Phase 1 - Connect and self-assessment	01/07/2022	31/12/2022	Structure and and Governance of LL defined Members identified (internal and external)
Phase 2.a - Educate and plan **Training on SRP outcomes**	**10/10/2022**	**19/12/2022**	**Project partners + external experts trained on SRP outcomes**
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Phase 5.b – Capitalization & mainstreaming (WP6)	01/07/2023	15/09/2023	Adoption of the energy efficiency action plans Capitalization of results for mainstreaming

SLL Training on SRP

SEACAP 4 SDG

Information/Training sessions on available outcomes

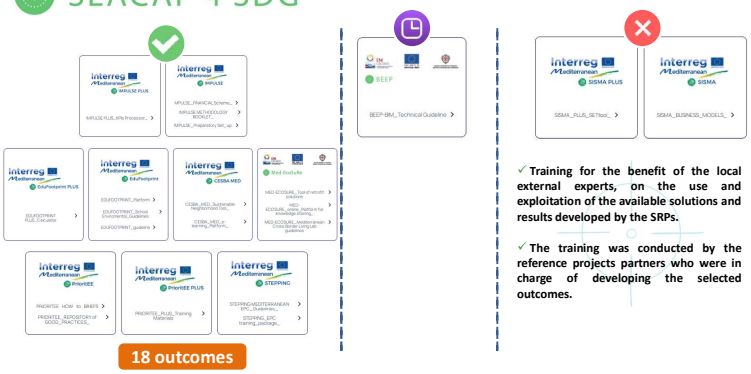
October 10th – December 7th 2022

Monday October 10th 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/91559697282?pwd=UEpsYVROZUVJV0ISZHRhU3p4UVp3UT09	
10.00 – 10.10 CET	**Welcome by UPatras and MEDREC**
10.10 – 11.10 CET	*18M-IMPULSE_Preparatory Set_up* *1T-IMPULSE_KPIs Processor* Ms Katerina Sfakianaki and Ms Eleni Chatzigeorgiou *Centre for Renewable Energy Sources and Saving (CRES)*
11.10 – 11.30 CET	**Questions**
11.30 – 13.00 CET	*17M-IMPULSE_METHODOLOGY_BOOKLET_factsheet.pdf* Ms Vera Valero Escribano *Instituto Valenciano de la Edificación*
13.00 – 13.30 CET	**Questions / Break**
13.30 – 14.30	*2T-IMPULSE_FINANCIAL_Scheme_factsheet.pdf* Dr Ilja Drmač *FIHP - Energy Institute Hrvoje Požar*
14.30 – 15.00 CET	**Questions**

Thursday November 3rd 2022	
Join Zoom Meeting https://upatras-gr.zoom.us/j/96079938266?pwd=L01uUWpsQnJnUJ2hJ51RncItUEIPQT09	
15.00 – 15.10 CET	**Welcome by UPatras and MEDREC**
15.10 – 16.30 CET	*7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf* *11M-MED-ECOSURE_MCBLL_factsheet.pdf* ***Quantitative and Qualitative Monitoring Protocols and Data Management*** Mr Giacomo Pierucci *UNIFI-DIDA – University of Florence Department of Architecture*
16.30 - 17.00 CET	**Questions**
17.00 – 18.30 CET	*7T-MED-ECOSURE_Tool of retrofit solutions_factsheet.pdf* *11M-MED-ECOSURE_MCBLL_factsheet.pdf* ***User-friendly Digital Platforms to enable an EE user-experience*** Prof Debora Giorgi *UNIFI-DIDA – University of Florence Department of Architecture*
18.30 - 19.00 CET	**Questions**

SLL training on SRP outcomes

SEACAP 4 SDG



✓ **Training for the benefit of the local external experts, on the use and exploitation of the available solutions and results developed by the SRPs.**

✓ **The training was conducted by the reference projects partners who were in charge of developing the selected outcomes.**

SLL Training on SRP

SEACAP 4 SDG

Information/Training sessions on available outcomes

October 10th – December 7th 2022

Repository of the training material

Partners	External experts
Google Drive	ICT platform Youtube channel SEACAP4SDG

SLL Timeline

SEACAP 4 SDG

SEACAP LL phases	Start	End	Outputs
Phase 1 - Connect and self-assessment	01/07/2022	31/12/2022	Structure and and Governance of LL defined Members identified (internal and external)
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SLL Training on LL setup

SEACAP 4 SDG

Training: How to develop and implement a SEACAP through a Living lab

- **Cross border training** delivered by PP2 and PP8 online, over two sessions, and is **compulsory for the SLIT** (project beneficiary and associate partners). The project partners can involve the **local experts** in the trainings.

- **Local training** delivered by the SLIT physically/online (based on each local case) , and is compulsory for the **selected cities/municipalities**
  It is recommended to involve **local actors** (*decision makers, national/regional authorities, building/energy managers, companies, experts, Representatives of academia and research sector….*

	Timeframe	Trainer
Cross-border training sessions	23 And 26 January 2023	MEDREC and UPATRAS
Local training sessions	1-15 February 2023	SLIT

SLL Training on LL setup

SEACAP 4 SDG

SEACAP SLIT & local experts' form

- SE(A)CAP Local Implementation Team (SLIT) will be composed of
- ✓ **Project Partners** (at least one member per Partner)
- ✓ **Associated Partners**
- SLIT contact list includes the details of **local experts** selected to assist the Municipalities

SLL Training on LL setup

SEACAP 4 SDG

SEACAP SLIT & local experts' form

Partner name	Country	1st SLIT member (partner) - Name	2nd SLIT member (partner) - Name	External expert - Name of contact person
LB - ECN/NCA	France	Bernard MASSABO	Alison TORTI	Philippe MICHAUD
PP1 - AASTMT	Egypt	Yasser Gaber Dessouky	Rania Farouk Rageh	Moustafa Ahmed Abdel Galil
PP2 - UPatras	Greece	Panagiota Saranti	Yorgos Stephanedes	Georgios Stavrakakis
PP3 - ANEA	Italy	Nicola Barbato	Martina Di Costanzo	Mattia Leone
PP4 - NERC	Jordan	Mohammad Mosleh	Muhieddin Tawalbeh	Amjad Alkam
PP5 - LCEC	Lebanon	Sorina Mortada	Haidar Rida & Mohammad Hijazi	Ronald Diab & Myriam Osman
PP6 - IREC	Spain	Jordi Pascual	Emilio Hernando	Carla Garcia
PP7 - IVE	Spain	Lucía Ramírez	Borja Pallas	data cannot be provided until the contract has been signed
PP8 - MEDREC	Tunisia	Souha Ferchichi	Ines Khalifa	Imen Landoulsi

SLL Timeline

SEACAP 4 SDG

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Improve & Evaluate

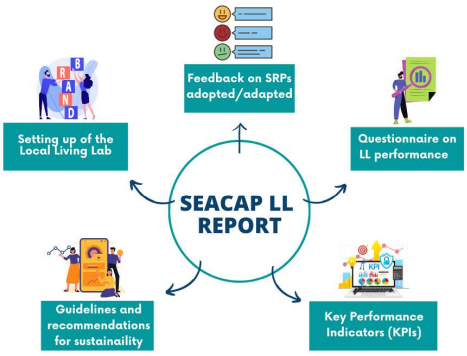
SEACAP 4 SDG

Overall SLL evaluation

1 report per local LL

Responsible: LLL coordinator
Contributors: LLL members

TEMPLATE AVAILABLE
https://docs.google.com/document/d/1Kr6NH3GerWLlsmSQTdlbhcQuaKti4QDr/edit?usp=sharing&ouid=116342729403202204090&rtpof=true&sd=true



SLL Reporting

SEACAP 4 SDG

Setting up of the Local Living Lab

- Explain the steps carried out in the process of LL set up
- Use language, photos, materials that is appropriate for direct publication (exclude any restricted information or personal data without consent etc.)
- Mention the problems you faced (if any) during the LL set-up...

Improve & Evaluate

SEACAP 4 SDG

Feedback on SRPs adopted/adapted

Provide feedback for the adoption of one/more SRP outcomes in the local Living labs (under real conditions and specificities). In case of improvements generated on the SRP outcome(s), ***a description should be included in the Local Living Lab Report***

- *Were improvements proposed?*
- *If yes which are they (you can use table overview, graphs overview)?*
- *Describe the process (training on specific tool/methodology?)*

SEACAP 4 SDG

Questionnaire on LL performance

	Strongly disagree	*Disagree*	*Neither agree or disagree*	*Agree*	*Strongly agree*
LL enables transferring of user-oriented solutions					
LL strengthens the cooperation and trust between public and private sector					
LL supports and strengthens cooperation among LL stakeholders					
LL strengthens stakeholders' transnational cooperation and networking with other organizations					
LL enables the exchange of experiences or concerns for EE of public buildings					
LL enables more positive attitude towards EE of public buildings among LL stakeholders					
Participation in LL has increased the capacity of owners and managers of public buildings to design and implement better energy efficiency practices					

The questionnaire is in English. It should be translated to local language by LLL coordinators

SEACAP 4 SDG

Key Performance Indicators (KPIs)

SEACAP 4 SDG

List of Key Performance Indicators (KPIs)

Area	No.	Performance indicator name	Metric	Description of performance indicator
Potential stakeholders	1	Number of potential PAs	number	The indicator measures the number of potential PAs, including policy makers, contacted by LL initiator to be involved in LL activities.
	2	Number of potential SMEs/enterprises	number	The indicator measures the number of potential SMEs/enterprises contacted by LL initiator to be involved in LL activities.
	3	Number of potential higher education and research organizations	number	The indicator measures the number of potential higher education and research organizations contacted by LL initiator to be involved in LL activities.
	4	Number of potential business support organisations/clusters	number	The indicator measures the number of potential business support organizations/clusters contacted by LL initiator to be involved in LL activities.
	5	Number of potential Energy agencies	number	The indicator measures the number of potential Energy agencies contacted by LL initiator to be involved in LL activities.
	6	Number of potential other organizations (please indicate)	number	The indicator measures the number of potential other organizations contacted by LL initiator to be involved in LL activities.
akeholders	7	Number of PAs	number	The indicator measures the number of PAs, including policy makers, involved in LL activities.
	8	Number of SMEs/enterprises	number	The indicator measures the number of SMEs/enterprises involved in LL activities.
	9	Number of higher education and research organizations	number	The indicator measures the number of higher education and research organizations involved in LL.

SEACAP 4 SDG

Guidelines and recommendations for sustainaility

Based on the evaluation of the selected SRP outcome(s) and the overall performance of the LL

➡ *Provide some general guidelines and recommendations ensuring future improvements and sustainability of established LLs.*

SEACAP 4 SDG

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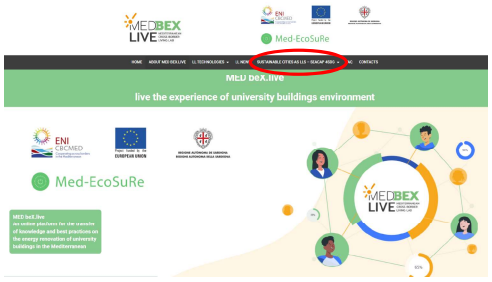
SEACAP 4 SDG

online platform for knowledge and best practices sharing



MEDBEX LIVE MEDITERRANEAN CROSS BORDER LIVING LAB

SEACAP 4 SDG

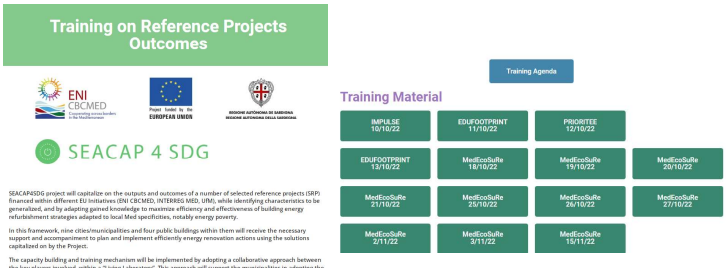
Upscaling Med-EcoSuRe online platform

SEACAP 4 SDG

Upscaling Med-EcoSuRe online platform

SEACAP 4 SDG

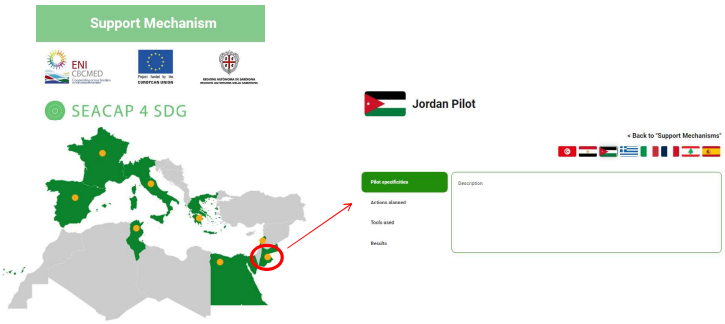
Upscaling Med-EcoSuRe online platform



Cooperation Platform

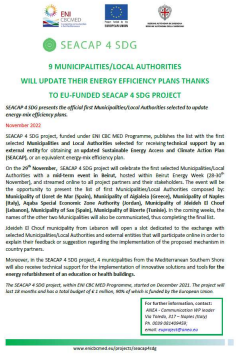
SEACAP 4 SDG

Upscaling Med-EcoSuRe online platform



Other channels

SEACAP 4 SDG



SEACAP 4 SDG

9 MUNICIPALITIES/LOCAL AUTHORITIES WILL UPDATE THEIR ENERGY EFFICIENCY PLANS THANKS TO EU-FUNDED SEACAP 4 SDG PROJECT

SEACAP 4 SDG presents the official first Municipalities/Local Authorities selected to update energy mix efficiency plans.

November 2022

SEACAP 4 SDG project, funded under ENI CBC MED Programme, publishes the list with the first selected **Municipalities and Local Authorities selected** for receiving **technical support by an external entity** for obtaining an **updated Sustainable Energy Access and Climate Action Plan (SEACAP)**, or an equivalent energy-mix efficiency plan.

On the 29th **November**, SEACAP 4 SDG project will celebrate the first selected Municipalities/Local Authorities with a **mid-term event in Beirut**, hosted within Beirut Energy Week (29-30th November), and streamed online to all project partners and their stakeholders. The event will be the opportunity to present the list of first Municipalities/Local Authorities composed by: **Municipality of Lloret de Mar (Spain), Municipality of Aigialeia (Greece), Municipality of Napoli (Italy), Aqaba Special Economic Zone Authority (Jordan), Municipality of Jdeideh El Chouf (Lebanon), Municipality of Ise (Spain), Municipality of Bizerte (Tunisia)**. In the coming weeks, the names of the other two Municipalities will also be communicated, thus completing the final list.

Jdeideh El Chouf municipality from Lebanon will open a slot dedicated to the exchange with selected Municipalities/Local Authorities and external entities that will participate online in order to explain their feedback or suggestion regarding the implementation of the proposed mechanism in country partners.

Moreover, in the SEACAP 4 SDG project, 4 municipalities from the Mediterranean Southern Shore will also receive technical support for the implementation of innovative solutions and tools **for the energy refurbishment of an education or health buildings.**

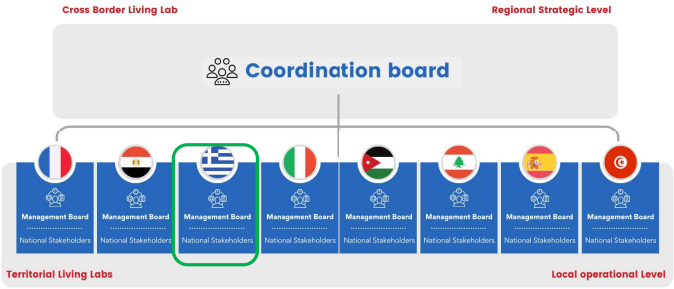
The SEACAP 4 SDG project, within ENI CBC MED Programme, started on December 2021. The project will last 18 months and has a total budget of 4.2 million, 90% of which is funded by the European Union.

For further information, contact:
ANEA – Communication WP leader
Via Ferrara, 817 – Napoli (Italy)
PH. 0039 0814904426
email: marigenti@anea.eu

www.enicbcmed.eu/projects/seacap4sdg

LLL example

SEACAP 4 SDG



LLL example

SEACAP 4 SDG

Greek Local Living Lab – Level 1 demonstrator

1st of February: *Local LL in Aigialeia -> Final organisational steps in process*

Introduction to SEACAP 4 SDG
- LL Concept
- Establishment of local LL

→ **Review of Selected Reference Project's Outcomes**

→ **Presentation of selected computational tools from SEACAP 4 SDG toolkit for conducting public buildings energy plans**

→ **Training– Part A**
- Manipulation of building stock – Extracting building Typologies
- Energy analysis – Production of KPIs' database for building stocks
- Case study

→ **Training– Part B**
- Prioritization of projects & production of a energy plan
- Development of financial schemes for projects' implementation
- Case study

→ **Exploitation of SEACAP 4 SDG toolkit for conducting energy action plans (e.g. SECAP)**

ENI CBCMED Cooperating across borders in the Mediterranean | Project funded by the EUROPEAN UNION | REGIONE AUTÒNOMA DE SARDIGNA REGIONE AUTONOMA DELLA SARDEGNA

LLL example

SEACAP 4 SDG

Greek Local Living Lab - members

Management Board	UPatras	→	Coordination
Associated Partners	Region of Western Greece	→	Invited to take part in the Local LL
Local experts	MES Energy	→	Implementation of the support mechanism
National stakeholders	Engineers Association of Aigialeia Technical Chamber of Greece	→	Involvement as participant stakeholders. Representatives confirmed to take part in the Local training and disseminate the material.
Beneficiary municipality	Municipality of Aigialeia	→	Adoption of the support mechansim

ENI CBCMED Cooperating across borders in the Mediterranean | Project funded by the EUROPEAN UNION | REGIONE AUTÒNOMA DE SARDIGNA REGIONE AUTONOMA DELLA SARDEGNA

LLL example

SEACAP 4 SDG

ENI CBCMED Cooperating across borders in the Mediterranean | Project funded by the EUROPEAN UNION | REGIONE AUTÒNOMA DE SARDIGNA REGIONE AUTONOMA DELLA SARDEGNA

LLL example

SEACAP 4 SDG

Tunisian Local Living Lab – Level 1 and 2 demonstrators

01 Establishment of the Local Living Lab	02 Review of the Selected Refrence Projects outcomes	03 Presentation of the selected outcomes to beneficiaries
04 Identification of the pilot building to serve as case study	05 Cross-analysis of the energy performance of the pilot building	06 Identification of energy efficiency measures
07 Developing and conducting a capacity building program for representatives of the municipality of Bizerte	08 Setting up an approach for user experience design /Human-Centered Design	09 Development of an Energy efficiency plan & a Roadmap for enegy renovation evaluation and planning

ENI CBCMED Cooperating across borders in the Mediterranean | Project funded by the EUROPEAN UNION | REGIONE AUTÒNOMA DE SARDIGNA REGIONE AUTONOMA DELLA SARDEGNA

LLL example

SEACAP 4 SDG

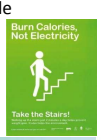
Tunisian Local Living Lab – Level 1 and 2 demonstrators

Green Nudging

08

Setting up an approach for user experience design /Human-Centered Design

- Behavioural science applied in the name of the environment/ behavioral influencing techniques
- Promoting environmentally sustainable behaviors



>>> **Enhancing building energy conservation behavior**

LLL example

SEACAP 4 SDG

Tunisian Local Living Lab – Level 1 and 2 demonstrators

✓ **Eco-feedback systems** : provide building occupants with information about their historical and current energy usage through technology (device and/or interface).

✓ **Awareness raising campaigns** influencing user behavior to conserve energy in buildings

Source: Soomro, A. M., Bharathy, G., Biloria, N., & Prasad, M. (2021). A review on motivational nudges for enhancing building energy conservation behavior. Journal of Smart Environments and Green Computing.

LLL example

SEACAP 4 SDG

Tunisian Local Living Lab – Level 1 and 2 demonstrators

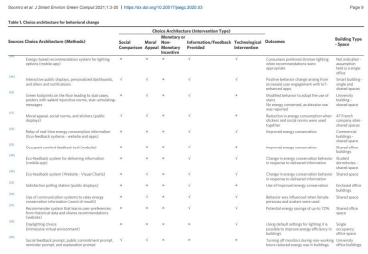

Soomro et al. / J Smart Environ Green Comput 2021;1:3-20 | https://doi.org/10.20837/jsegc.2020.03 Page 9

Table 1. Choice architecture for behavioral change

Sources	Choice Architecture (Methods)	Choice Architecture (Intervention Type): Social Comparison	Moral Appeal	Non-Monetary or Non-Monetary Incentive	Information/Feedback Provided	Technological Intervention	Outcomes	Building Type - Space
[9]	Energy based recommendation system for lighting options (mobile app)	×	×	×	×	×	Consumers preferred (across lighting) when recommendations were appropriate	Not indicated - assumption is it is a single office
[10]	Interactive public displays, personalized dashboards, and alerts and notifications	√	√	×	√	√	Positive behavior change arising from increased user engagement with ICT-enhanced apps	Smart building - single and shared spaces
[11]	Green footprints on the floor leading to size-cases, posters with subset injunctive norms, ever-unfolding messages	×	√	×	√	×	Sustainable behavior is critical the case of study. No energy conserved, acceleration was observed	Smart building - shared space
[12]	Moral appeal, social norms, and stickers (public display)	√	√	×	√	×	Reduction in energy consumption when all three social norms were used together	ICT-based company sites - shared spaces
[13]	Relay of real time energy consumption information (Eco-feedback system - website and apps)	×	×	×	√	√	Improved energy conservation	Commercial office buildings - shared space
[14]	Occupant comfort feedback tool (website)	×	×	×	√	×	Improved energy conservation	Shared office buildings
[15]	Eco-feedback system for delivering information (mobile app)	×	×	×	√	√	Change in energy conservation behavior in response to delivered information	Student dormitories - shared space
[16]	Eco-feedback system (Website - Visual Charts)	×	√	×	√	√	Change in energy conservation behavior in response to delivered information	Shared space
[17]	Satisfaction polling station (public display)	×	×	×	√	×	Use of improve energy conservation	Enclosed office buildings
[18]	Use of communication systems to relay energy conservation information (word of mouth)	×	√	×	√	√	Behavior was influenced when female persons and avatars were used	Shared space
[19]	Recommender system that has its own preferences, learns from user data and shares recommendations (website)	×	×	×	√	√	Potential energy savings of up to 73%	Shared office space
[20]	Designing choice (immersive virtual environment)	×	×	×	×	√	Using default settings for lighting it is possible to improve energy efficiency in a building	Single occupancy - shared space
[21]	Social feedback prompt, public commitment prompt, reminder prompt, and explanation prompt	√	√	×	×	×	Turning off monitors during non-working hours reduced energy use in buildings	University - office buildings

Source: Soomro, A. M., Bharathy, G., Biloria, N., & Prasad, M. (2021). A review on motivational nudges for enhancing building energy conservation behavior. Journal of Smart Environments and Green Computing.

LLL example

SEACAP 4 SDG

Tunisian Local Living Lab - members

Management Board	MEDREC	➡	Coordination
Local experts	ADD Atmosphère	➡	Implementation of the support mechanism
National stakeholders	Association Edifices et mémoire	➡	**Consultancy:** propose innovative sustainable renovation concepts suitable for public buildings
	Engineering students	➡	**Research:** Evaluation of possible retrofit measures using the capitalization toolkit
Beneficiary municipality	Municipality of Bizerte	➡	Adoption of the support mechanism

LLL example

SEACAP 4 SDG

Tunisian Local Living Lab - Training

Management Board	MEDREC	➡	Coordination
Local experts	ADD Atmosphère	➡	Implementation of the support mechanism
National stakeholders	Association Edifices et mémoire	➡	**Consultancy:** propose innovative sustainable renovation concepts suitable for public buildings
	Engineering students	➡	**Research:** Evaluation of possible retrofit measures using the capitalization toolkit
Beneficiary municipality	Municipality of Bizerte	➡	Adoption of the support mechansim
Other municipalities in the Governorate of Bizerte			

Local Training 14-15/02

SEACAP 4 SDG

Thank you
for your attention

Souha Ferchichi - Mediterranean Renewable Energy Centre (MEDREC)
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SEACAP 4 SDG

Training of SLIT
How to involve and engage stakeholders through a Living Lab

SEACAP Living Lab

Ines Khalifa and Souha Ferchichi

Thursday, 26th January 2023, 10.00 am

SEACAP 4 SDG

WP4 -Transferring knowledge and strengthening multilevel governance through Living Lab and training

WP coordinator: PP2
Involved partners: Applicant, PP1, PP3, PP4, PP5, PP6, PP7, PP8
Contribution to the selected Programme Expected result(s) 4.3.1

- ***Expected Result 4.3.1:*** *Enhanced capacity of public institutions to plan and implement sustainable energy policies and measures with regard to public buildings*

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Outline

01 Introduction: why stakeholders participation is important?

02 Involvement of key actors as a starting point

03 Cooperation towards SEACAP: classical approach vs Living lab approach

04 Identification of stakeholders

05 How do we engage identified stakeholders

06 Evaluation and Assessment - KPIs

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1-Why stakeholders participation is important ?

- Participatory policy-making is more transparent and democratic
- A decision taken together with many stakeholders and citizens is based on more extensive knowledge
- Broad consensus improves the quality, acceptance, effectiveness and legitimacy of the plan

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1-Why stakeholders participation is important ?

- Sense of participation in planning ensures the long-term acceptance, viability and support of strategies and measures
- SECAPs may sometimes get stronger support from external stakeholders than from the internal management or staff of the local authority

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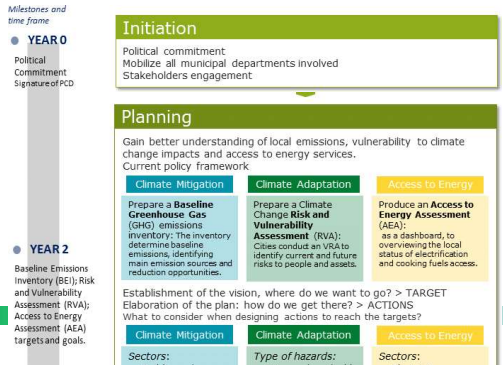
2-Involvement of key actors as a starting point



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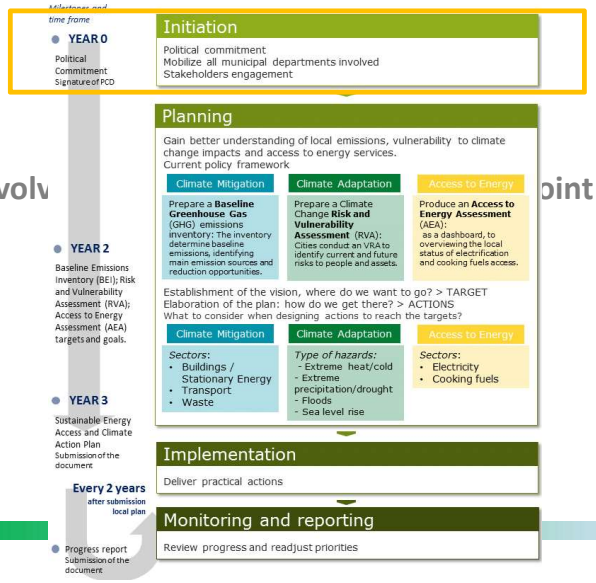

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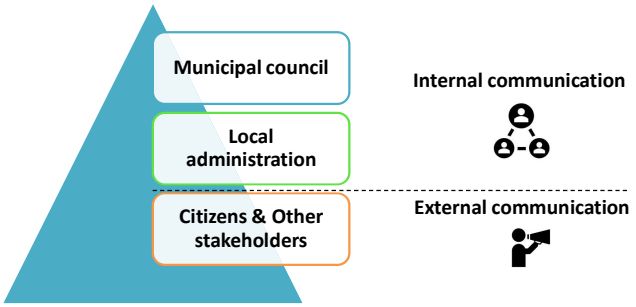
3-Cooperation towards SEACAPs: classical approach



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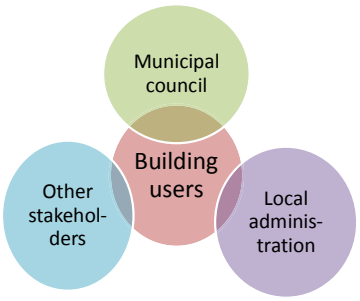
3-Cooperation towards SEACAPs: LL approach



Close collaboration

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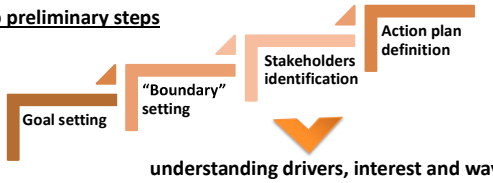
4-Identification of Stakeholders

Living lab preliminary steps



understanding drivers, interest and way of working of all the parties involved is needed

ensure continuous involvement and positive contribution

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4-Identification of Stakeholders

Expression of interest

Link:
https://docs.google.com/forms/d/1OpXdlFH9H25OlLgt2ZDm6dr25SpWWsig6EzETQhlmTg/edit

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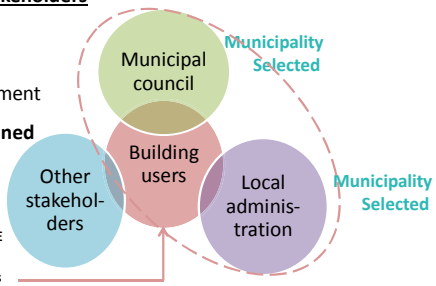
4-Identification of Stakeholders

Different typologies of stakeholders

+ **Local experts** providing assistance and accompaniment

+ **Different typologies defined**
  - **Institutional decision makers**
  - **National and regional energy management authorities**
  - **Building / Energy managers**
  - **Socio-economic operators in RE and EE sectors**
  - **End users: buildings' occupants**



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4-Identification of Stakeholders

Stakeholders Matrix

Institutional decision makers

Will be able to exert significant leverage on improving EE in public buildings

National and regional energy management authorities

replicating the good practices and pilot initiatives, will use the tools and solutions proposed in the framework of the project.

Building/Energy managers

Will be part of national focus groups and cross border network groups in charge of proposing innovative sustainable renovation concepts suitable for different categories of public buildings.

Socio-economic operators

Will work jointly with the research groups on developing and commercializing innovative solutions for building renovation and construction.

End users

Special type of stakeholders, requiring a targeted involvement and communication.

Engaged, with interviews and questionnaires , to detect their perception of wellbeing and indoor comfort quality , before and after intervention

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4-Identification of Stakeholders

Stakeholders Matrix

Typology	Name	Competencies	Contact	Type of Involvement	Work	Meetings	Type of agreement	Post-project results valoriz.
Institutional decision makers	Ministry of Heritage / Education							
National and regional energy management authorities	Energy Department-	Regional competent office on energy	...	Support and knowledge transfer on previous EE plan on PB	Investigation for new regional plans on EE of public buildings	Explorative meeting, invited for a workshop in (country)	Joint Research Agreement, Research Activities Agreement	Support for post-project implementation , H2020 /other projects
Socio-economic operators	CET (Società Consortile Energia Toscana)	Energy service and maintenance	...	Collaboration for the energy audit & the data analysis	Sharing energy data on the pilot building	Technical meetings, workshop in Florence	Confidential Agreement, MOU	H2020 or other research projects (ENI CBC MED)
End-users	Administrative staff			feedback on comfort perception and analysis of behaviour		Direct contact in the pilot building		

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5-How do we engage stakeholders?

Stakeholders engagement action plan

STEP 1 — **DEFINE COMMON PROBLEM OR OPPORTUNITY, STAKEHOLDER SELF-ASSEMENT AND CONNECT STAKEHOLDERS**

STEP 2 — **EDUCATE AND TRAIN STAKEHOLDERS**

STEP 3 — **ENGAGE STAKEHOLDERS IN THE IMPLEMENTATION PROCESS**

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5-How do we engage stakeholders?

STEP 1.

A- DEFINE COMMON PROBLEM OR OPPORTUNITY

➢Define a user driven problem/opportunity in order to **define key areas for improvement**

through workshops or meetings organized, public authorities in-site visits, interviews, etc. leading to categorization of stakeholders and prioritization of needs

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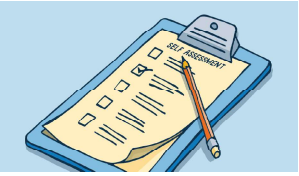
5-How do we engage stakeholders?

STEP 1.
B- STAKEHOLDER SELF-ASSESSMENT

➢**Self-assessment** in order identify the **social needs** and **self-assess current knowledge** on existing **best practises** within their organisation

through questionnaire sent to stakeholders



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5-How do we engage stakeholders?

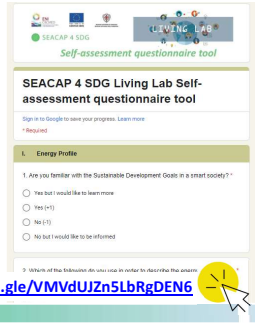
STEP 1.
B- STAKEHOLDER SELF-ASSESSMENT

Why use the self assessment tool?

Identify potential needs and levels of knowledge.

Prioritize of need to be educated in specific practices.

Help to specify level of difficulty in setting up LLL...



https://forms.gle/VMVdUJZn5LbRgDEN6

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5-How do we engage stakeholders?

STEP 1.
C- CONNECT STAKEHOLDERS

➢**the collaboration** between stakeholders is useful to take decisions on more extensive knowledge

through : **expression of interest form** or **MoU** -formal- to **make clear** agreement on **the purpose** of cooperation and the **obligations** of each stakeholder.

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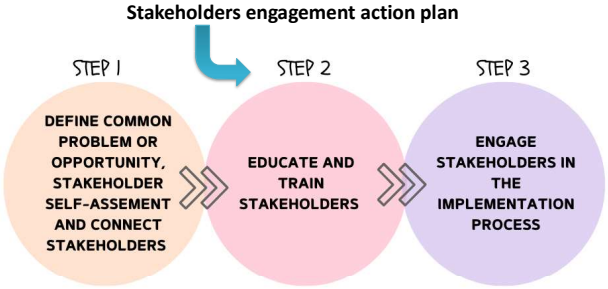
5-How do we engage stakeholders?

Stakeholders engagement action plan



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5-How do we engage stakeholders?

STEP 2.
EDUCATE AND TRAIN STAKEHOLDERS

Methodology : Several workshops / meetings should be organized to educate stakeholders on

- ❑EE solutions
- ❑funding opportunities
- ❑existing policies...

In case of several different topics to be addressed in a SLL, selection of participants should be made according to the topics.

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5-How do we engage stakeholders?

STEP 2.
EDUCATE AND TRAIN STAKEHOLDERS

Local Training sessions on SLL

delivered by the SLIT physically/online (based on each local case), and is compulsory for the **selected cities/municipalities**

It is recommended to involve **local actors** (*decision makers, national/regional authorities, building/energy managers, companies, experts, Representatives of academia and research sector….*

February 1st – 15th, 2023

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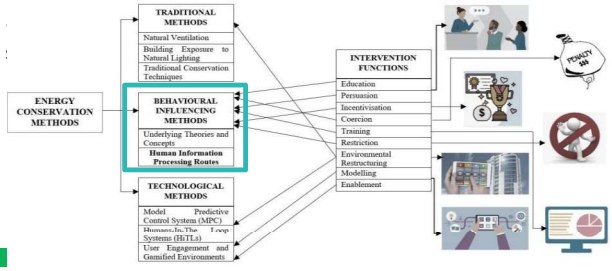
5-How do we engage stakeholders?

STEP 2.
EDUCATE AND TRAIN STAKEHOLDERS

Source: Soomro, A. M., Bharathy, G., Biloria, N., & Prasad, M. (2021). A review on motivational nudges for enhancing building energy conservation behavior. Journal of Smart Environments and Green Computing.



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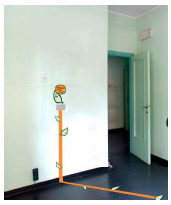
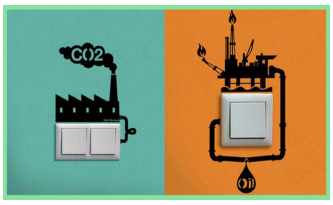
5-How do we engage stakeholders?

STEP 2.
EDUCATE AND TRAIN STAKEHOLDERS

Nudging techniques





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5-How do we engage stakeholders?

Stakeholders engagement action plan

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5-How do we engage stakeholders?

STEP 3.

ENGAGE STAKEHOLDERS IN THE IMPLEMENTATION PROCESS

- On-site guided implementation is carried out in premises of the stakeholders, which agrees on the usage of his facilities (e.g., rooms, ICT).
- In case of remotely guided implementation, expert cannot be present on-site, instead he/she can provide a support via electronic means (via emails, skype conference, telephone, remote access).

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5-Evaluation and Assessment - KPIs

TYPE 1 — KPIs for the assessment of the LL performance
- To be included in the LL report during the project
- To be defined by the SLI T together with the LL members

TYPE 2 — KPIs for the assessment of the SEACAP develp. & imple.
- To be used/quantified beyond the projet closure
- To be defined by the SLI T together with the beneficiaries

Key Performance Indicators (KPIs)

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5-Evaluation and Assessment - KPIs

TYPE 1.

KPIs for the assessment of the LL performance

Area	No.	Performance indicator name	Metric
Participating stakeholders	1	Number of participating PAs	number
	2	Number of potential SMEs/enterprises	number
	3	Number of potential higher education & research org.	number
	4	Number of potential business support org./clusters	number
	5	Number of potential Energy agencies	number
	6	Number of potential other organizations (to be indicated)	number

Key Performance Indicators (KPIs)

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5-Evaluation and Assessment - KPIs

TYPE 1.

KPIs for the assessment of the LL performance

Area	No.	Performance indicator name	Metric
LL meetings	1	Number of individual meetings	number
	2	Number of joint LL meetings	number
Outcomes adopted	...	Number of SRP's Outcomes under type "Tool"	number
LLL Action Plans	...	...	
Agreements signed	...	...	

Key Performance Indicators (KPIs)

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5-Evaluation and Assessment - KPIs

TYPE 1.

KPIs for the assessment of the LL performance

Area	No.	Performance indicator name	Metric
Support mechanism extent	1	N° of cities involved / Territories covered	Number
	2	Area covered	m2
	3	Building stock addressed (n°)	number
	4	Energy consumption / CO2 emissions	kWh / tons
Knowledge	1	Knowledge on EE policies (EU, national, local) for public buildings	Level of knowledge

Key Performance Indicators (KPIs)

SEACAP 4 SDG

5-Evaluation and Assessment - KPIs

TYPE 2.

KPIs for the SEACAP Development and Implementation

Area	No.	Performance indicator name	Metric
	1		
	2		
	3		
	4		
	1		

Key Performance Indicators (KPIs)

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Thank you

for your attention