



## **ECO<sup>2</sup> -SCHOOLS as learning-action living labs**

### **Deliverable 4.1 – Localised Implementation plans and strategies**



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<b>Abstract</b>	The document describes a climate-responsive design approach that strives to design for efficiency while simultaneously satisfying or enabling the achievement of all project goals. This document provides a description of the implementation framework of the NEB-LAB project with concrete examples for the different implementation stages. It also provides a detailed description of the localized implementation plans of the 5 Pilot Sites of the project. It provides a description of the five Pilot Sites, demonstrating each Implementation Plan and also its different steps and actions. It begins with the green school campus of Ellinogermaniki Agogi in Greece, then transitions to the green neighborhood campus and renovation living-lab in Microville 112, Coursy, France. The narrative continues with the Ciência Viva Science Center in Portugal, the University College Cork in Ireland, and the Sigtunaskolan Humanistiska Läroverket (SSHL) in Sweden. The document aims to show the different implementation plans of the 5 selected innovative Educational Buildings.
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## Executive summary

The NEB-LAB project aims to demonstrate the process towards zero-energy and energy positive educational buildings and green neighborhoods. NEB-LAB will support the development of five demonstration sites in Greece, France, Portugal, Ireland and Sweden.

**Chapter One** includes an introduction to the document's scope and structure with a description of its objectives. It presents the aim of NEB-LAB to facilitate the transformation of the pilot sites to innovative ecosystems, acting as shared sites of science learning for which leaders, teachers, students and the local community share responsibility, over which they share authority, and from which they all benefit through the increase of their communities' science capital and the development of responsible citizenship. The NEB-LAB demonstration sites will present ways to increase the energy efficiency of the educational buildings and provide at the same time a unique opportunity to improve health and well-being, create jobs and increase household savings.

**Chapter Two** refers to the pedagogical theories that act as the stepping stone for the implementation framework of the NEB-LAB project. These pedagogical theories build upon the concept of the Open Schooling and the full cycle of the NEB-LAB process for the development of the Green Neighborhood Living Labs presented in D2.2. Green Action Plans and KPIs. The concepts of the "Whole school approach", "Design thinking" and "Social learning" are described.

**Chapter Three** provides a description of the implementation framework of the NEB-LAB project with concrete examples for the different implementation stages. The chapter makes reference to the co-design process that forms the main strategy in the transformation journey of the educational buildings. The key outcome of the process is the engagement of the local communities in the building renovation. This co-design process proposes four Test Activities for the effective engagement of the user communities in the project activities. The Test Activities (Community building, Discovering & observing, Permanent communication and reportage, Use innovative solutions) have been implemented and validated in the pilot sites and constitute the stepping stone of the proposed implementation framework.

**Chapter Four** presents the core part of the deliverable since it provides a detailed description of the localized implementation plans of the 5 Pilot Sites of the project. The chapter provides a description of the five Pilot Sites, demonstrating each Implementation Plan and also its different steps and actions. It begins with the green school campus of Ellinogermaniki Agogi in Greece, then transitions to the green neighborhood campus and renovation living-lab in Microville 112, Coursy, France. The narrative continues with the Ciência Viva Science Center in Portugal, the University College Cork in Ireland, and the Sigtunaskolan Humanistiska Läroverket (SSHL) in Sweden. This Chapter aims to show the different implementation plans of the 5 selected innovative Educational Buildings. It provides details about the unique need and challenges, the related educational activities, illustrating the broad applicability of the project's methodology and underscoring its potential for driving energy efficiency and sustainability in diverse settings.

**Chapter Five** includes the conclusions of the deliverable summarizing the main topics that were developed in the document.

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## 1. Introduction

NEB-LAB is considering schools as “learning organizations” and “core social centers” that can react more quickly to changing external environments, embrace innovations in internal organization, and ultimately improve student outcomes. Such school environments promote Open Schooling: where schools, in cooperation with other stakeholders, become an agent of community well-being; the walls around schools come down but they remain strong, sharing responsibilities with other community bodies. Non-formal learning, collective tasks, and intergenerational activities are strongly emphasized; school projects are revitalized around a knowledge agenda in cultures of experimentation, diversity, and innovation.

It is an open system, welcoming approaches from potential external collaborators; The school scans its external environment to respond quickly to challenges and opportunities; families are encouraged to become real partners in school life and activities; professionals from enterprises and civil and wider society are actively be involved in bringing real-life projects to the classroom. Partnerships are based on equality of relationships and opportunities for mutual learning; Relevant policy makers encourage policy buy-in and the mainstreaming of good practices and insights into policies, and hence sustainability and impact. Such partnerships foster expertise, networking, sharing, and applying science and technology research findings across different enterprises (e.g., start-ups, SMEs, and larger corporations).

NEB-LAB supports the development of five demonstration sites in Greece, France, Portugal, Ireland and Sweden. For the implementation of these projects an Integrated Design Process for the zero-energy educational buildings is being adopted. The process includes a) the Concept Design, b) the Bidding and the Construction and c) the Development of the Knowledge Base to act as a reference for the school community and for the neighbourhood stakeholders. Existing buildings are not currently equipped to positively contribute to a wider energy ecosystem. NEB-LAB adopts a three-step approach (in line with the three-step approach Design, Deliver and Diffuse of New European Bauhaus that aims to match style with creativity):

- Diagnose and address energy inefficiencies at local building level by optimising existing systems and adding new technology layers where required.
- Once buildings are running as efficiently as possible in isolation, enable buildings to safely and securely open themselves up to the wider world and communicate with external physical and digital infrastructure.
- Once buildings are open to the wider world, integrate buildings into the wider energy ecosystem so they can positively contribute to local infrastructure and flexible demand-side operations

The process facilitates the transformation of the pilot sites to innovative ecosystems, acting as shared sites of science learning for which leaders, teachers, students and the local community share responsibility, over which they share authority, and from which they all benefit through the increase of their communities’ science capital and the development of responsible citizenship. NEB-LAB demonstration sites present ways to increase the energy efficiency of the educational buildings and provide at the same time a unique opportunity to improve health and well-being, create jobs and increase household savings. This action is supported from the Chamber of Quality that the consortium partners will form in the framework of the project. In making a case to stakeholders, the challenge for cities is to document the multiple co-benefits that climate action has on urban life – exploring the answers to the questions above and evidencing the multiple

environmental, social and economic benefits to be enjoyed. Driving climate action with significant socio-economic benefits is a strategic priority for NEB-LAB demonstration sites. The demonstration sites develop synergies in their neighbourhoods committed to enrich modern living and improve sustainability through combatting climate change, growing the circular economy and safeguarding citizens' wellbeing.

Furthermore, NEB-LAB aims to propose a holistic methodology for the development of educational institutions' green strategy, action & execution plans as well as on-going monitoring mechanisms aiming at supporting these organizations in setting and realizing their green ambitions. NEB-LAB will demonstrate the importance of strategic goals, as societies are striving to meet three objectives: a) a better quality of life, b) economic growth c) an environmentally conscious focus on sustainability. These three goals are the cornerstones of societies' future initiatives and educational institutions have a significant role to play towards their achievement. Therefore, sustainability strategies and action plans of educational institutes should contribute to these 3 goals.

The aim of the NEB-LAB implementation activities is to demonstrate the process towards zero-energy, energy positive educational buildings and green neighborhoods.

Based on what is written in the use cases and green action plans for each site, each pilot should further build a vision around their educational objectives. The final aim is to prepare a plan that facilitates implementation on site. In order to go to implementation, ideas need- to be generated by the pilots. Also, we need to start from simple actions and evaluate those actions throughout implementation.

In this document, we are developing a model summarizing concrete steps for implementation. These stages are based on the whole school approach, design thinking and the 4-steps-plan as they are explained in D3.1 NEB-LAB Roadmap. By focusing on participative educational steps we lay the ground and foundation for community-based technical solutions. Our methodology focuses on the core team who serves as a representation for the community. That's why the core team should involve all types of stakeholders. It is often a fact that all members will not be present at all meetings, but the important part is that they are involved in the process.



## 2. Pedagogical theories used for the implementation framework

### An integrated theoretical approach to the implementation framework

In order to develop a precise and applicable step by step implementation framework, we inspired ourselves from a mixture of theories that we use on a daily basis as well as good practices from our field experiences throughout the years. In this section you'll find the diversified pedagogical theories used to create the implementation plan

#### 2.1 Whole school approach

The Whole School Approach (WSA), as the starting point of the development of Green Learning Ecologies to facilitate students learning, refers to a holistic, systemic, co-creative, and reflexive effort by all stakeholders involved in education to meaningfully engage students and in general, the school community in complex sustainability challenges. Holistic highlights the attempt to explore and address sustainability issues from multiple perspectives in an integrated and relational way. Systemic refers to considering key aspects of the education system simultaneously (formal, non-formal, and informal education, curriculum, pedagogies and learning, professional development, school-community relationships, school practices, vision, and leadership). Co-creative refers to the inclusion of multiple voices and stakeholders in the development of the approach within a given context either at a school or a policy level. At last, reflexive refers to the need for continuous learning, monitoring, evaluation, and re-calibration in response to an ever-changing world.



Figure 1 - Whole School Approach

A Whole School Approach is a concept in which multiple themes can be simultaneously addressed within the overarching umbrella of sustainability or sustainable development, not by reducing them to “learning tasks”, but as entry points to different ways of working and living, considering current global challenges. In this sense, this section provides an overview of how to transform

schools to enablers of the WSA to tackle sustainability challenges, introduce innovative topics and pedagogies, foster innovation, and strengthen collaborative and participatory learning and planning. A whole-school and interdisciplinary approach that includes students, teachers, families, and the broader community can help to create a cultural shift towards a more sustainable future. Hence, the creation of continuous learning paths that begin in primary education through to secondary and higher education is of paramount importance to ensure that young people are prepared to meet future sustainability challenges.

The NEB-LAB Implementation Framework has set as a priority to engage the whole school community to a Whole School Approach as the path towards the development of net zero renovation and smart use of energy positive educational buildings. Such an approach should be:

- Relevant to the school's mission; national educational priorities; community identity; as well as localised to the environmental priorities and regional needs.
- Resourced with expertise and support in sustainability and learning for sustainability; physical resources and technologies to make the transition; and medium-term financing opportunities to execute plans.
- Reflective by capacity building, critical reflection and evaluation at all levels; develop critical thinking, digital and sustainability competences in its staff and students; striving to become a learning organisation.
- Responsive by embracing a flexible structure and adapting to local and cultural settings; teachers and students develop the capabilities to recognise complexity as well as the changing nature of sustainability challenges and reject a one size fits all approach to sustainability.
- Reformative which means that the agenda is not simply one of adding environmental or net zero renovation themes to the curriculum but involves reframing the entire educational experience to support the overall learning ecology.

## 2.2 Design thinking

The social learning process can be complex to achieve. It is more a question of the characteristics/guidelines that need to be respected. To achieve a social learning process, it is possible to follow the steps of **Design-thinking**, a clear tool for shaping action processes. The steps in this design-thinking process are:

1. **Getting started:** form a group, create a connection within the group, stimulate/taste the theme
2. **Empathy:** having a view of the different aspects of a problem (systems thinking) and the different points of view from which a problem can be examined (and therefore the points of view of the people concerned).
3. **Exploring:** gathering and processing information to understand all aspects of the problem
4. **Generate ideas:** first brainstorm to get as many ideas as possible, then choose the best ones.
5. **Develop** one or more actions
6. **Test** the action, gather feedback and adapt it on the basis of this feedback
7. **Retrospective:** time to reflect with the group on the different stages they have gone through, the way they have worked together, what they have learned or how their vision, values, attitude, etc. have changed throughout the process, their feelings about the actions they have taken, their plans and dreams for the future or a concrete follow-up, etc.

*For example:*

*The 'School mobility plans' are a two-year project run by Goodplanet with the support of Bruxelles Mobilité. In these school travel plans, a working group is first set up with, for example, teachers, management, parents and pupils. They become the project leaders.*

*Once the group has been brought together and set in motion (1), it first carries out an in-depth diagnosis of transport to and from school (3): how does it work at present, how far away from school do they all live, what transport options are available, what are the obstacles, etc. and a survey is carried out among all the pupils in the school (2). Next, an action plan is drawn up together: what are our priorities, what are all the possibilities, where do we choose to start (4). An initial (series of) actions is drawn up, and if necessary, contact is made and the local authority is consulted (e.g. for infrastructure adaptations in the vicinity of the school) or with the STIB, bicycle repair shops, .... (5 and 6). At the end of the school year, the first year is evaluated (6 and 7) and plans are made for the following school year (7).*

*Throughout this process, the independence and involvement of the working group is being worked on, so that in the second year of the project (and beyond), they can continue to work independently (with some support on request from Brussels Mobility).*

This design-thinking process takes place over a much longer period of time than workshops. It generally takes place over several meetings, spread over one or more years. However, this depends on the project. Each stage can be a meeting in itself; it is also possible to concentrate stages 1-2-3-4 into a single first meeting and then propose 3 meetings around stage 5. All this will depend on the needs of your project, the terrain, the players involved, the partner's requests, etc.

## 2.3 Social learning

Social learning is based on the idea that reality is largely subjective and constantly evolving within each individual. We learn constantly through our relationships with others, by comparing our ideas, points of view, values, knowledge and behaviour with theirs. Learning therefore takes place in groups, networks and social systems (e.g. a school or an organisation), involving the group in problem-solving activities in complex, uncertain and unpredictable circumstances.

1. Social learning is **action-oriented**. This may involve trial and error, testing and adjustment. To be able to take action, it is important that participants to:
  - a. Understand how to deal with the challenges they face
  - b. Believe they can make a contribution and have confidence in their own abilities
  - c. Have hope that measures to find solutions can be taken, that it's not too late.
  - d. A desire to contribute to sustainable, practical solutions to complex challenges in their living environment.



Figure 2. The Social learning principles

2. These actions are organised around a **concrete sustainability problem**.
3. It takes place in **the participants' direct environment**. It involves learning in a very concrete situation, about a problem that is present **in the life and (immediate) context of the participants**.
4. Social learning is inquiry-based learning: **creativity, reflection and imagination are** important elements. Several elements are also important to involve in the process, by giving them space and allowing them: critical thinking (which can also involve a critical examination of what we are doing/going to do and the achievement of our objectives), systems thinking (knowing the parts, the whole and the links between them) and openness to different possibilities, new paths, alternatives.
5. As the name implies, social learning is something we do **together**, in co-creation. The feeling of "connection" with others is essential if we are to learn together and dare to take steps together. It provides a basis for security, confidence and motivation.
6. Social learning takes place with a **diverse group of participants**. This is because, in addition to feeling sufficiently "connected", it is very important to be able to **see differences, deal with them constructively and accept them**. In other words, there are several points of view, several opinions, several realities, etc. that will be confronted. It is **this confrontation that will generate changes in** critical thinking, opinions, values, behaviours, and so on. You also need it to find and implement creative, sustained and thoughtful solutions. Because the problems the group wants to tackle are complex, it's not always clear which expertise is most needed. It is therefore necessary to **bring together different interests and perspectives to achieve the group's objective**. It also means that it is preferable to use a number of different working methods, in order to accommodate as many of the participants' learning styles as possible.

Managing differences between people requires empathy on their part, i.e. the ability to understand what problems mean for others, for future generations, for people living in other

places, for other points of view and experiences, for other people's values and emotions. This requires participants to learn to engage in **genuine dialogue with each other, using and developing their psycho-social skills**: listening to each other, thinking constructively, learning to express their own point of view clearly, being able to recognise and name values and emotions, etc.

Finally, it's about **making decisions democratically**. That everyone's opinion counts, that sufficient time is taken to reach a consensus, that the loudest voices are not always right, that the voice of the minority is sufficiently heard.



### 3. Implementation framework

#### 3.1 NEB LAB eco2-school learning action co-design method

As it is described in Deliverable 3.1 “NEB-LAB Roadmap”, the Chamber of Quality of the project formulated four key steps that form the dedicated learning action-design method in order to support the formation of local communities and help the different stakeholders to step in the proposed NEB-LAB learning-action activities. The four steps are:

- Step 1- **Form a “Core Team” and a “local Community”** that will self-engage in learning-action (together).
- Step 2- **Document and explore the initial situation** (learn and observe).
- Step 3- **Follow up learning-action and achievements** (permanent reportage).
- Step 4- **Make on a limited area a first scalable “proof of concept”** (realize a first beautiful motivating project, visible in a central place with innovative bricks and scalable effects for Climate renovation).

These four key steps correspond to four “test activities” each enlightening important aspects of the learning action co-design method and step by step involvement. These four complementary test activities have supported the pilot sites first steps in the NEB-LAB process:

1. Community building: Focus to form your local community and start building a common commitment (set up the core team, map and involve the concerned community with codesign workshops),
2. Discovering & observing: Document and explore the initial situation on a limited area of the existing educative site,
3. Permanent communication and reportage: Follow up learning-action and achievements, with a community journal (wiki pilot-site dedicated webpage, facebook, newsletter), a person to person (peer to peer) transmission of knowledge and of responsibilities for further advancement, and a continuous improvement progress reporting,
4. Use innovative solutions: Dare a 1st step aside to try out and combine innovative solutions (with a community workshop, design & build a proof of concept for learning-action together with existing means).

Within NEB-LAB, these test activities were first each implemented and improved with a targeted pilot site. This interaction has helped the Chamber of Quality to improve, consolidate and share a packaged “Learning-action co-design method” which is presented in figure 3.



Figure 3 – The proposed Learning-action co-design method

## 3.2 In a nutshell

In order to allow the different pilots to implement their projects, we first translated the 4 different steps from the NEB-LAB eco2-school learning action co-design method into the following 6 concrete stages by including all the above point of attentions, theories and experienced. In this chapter you'll find a brief summary of what the step by step implementation looks like and what the practitioners should expect. As mentioned before, to succeed implementation, it is crucial to work with questions that are straightforward and easy to understand.

### Bring the core team together

There are many ways to bring people together in the core team. The core team should contain at least one members of every group of the community.

1. Communicate about the project

The best way to communicate is to use a canal you already possess.

2. How to create motivation?

The best way to create motivation to participate in the core team is to have a reward at the end of the project. It is also important to present the values and the advantages of this project for the structure and its community. If you insist on that in your communication, you raise your chances to have people motivated and with adequate values at this project.

3. Once your core team is completed

Strengthening of the core team through various tips by getting to know each other and their respective interests and values and by being transparent and accepting the differences in opinions

### Create a solid communication into the core team

**To be sure all the members will be aware of every decision, every meeting, every piece of new information, it is important to follow a very specific operational list of rules and steps such as:**

- Respecting the organizations of meetings
- Dispatch specific roles during meetings
- Centralization of important information and documents
- Have an informal place/support where information can be shared and written

### Analyze the situation

Understanding the right approach for your building—both inside and outside—requires analyzing your context (through self-reflection within the core team). By assessing how your structure functions and identifying its needs, you can develop practical actions and address those needs. To analyze the situation effectively, consider the perspectives of all stakeholders. What do they think about the theme within the structure? Do they have specific requirements related to the theme? Additionally, assess the existing and planned features of the building in relation to the theme. To do this, the core team should brainstorm and conduct on-site observations.”

### Establish a vision

*If the site already have its Green Action plan, the vision that is further developed here should be based on it. Be careful this vision is based on the educational part of this project.*

- Phase 1: Defining a Vision
  - o Develop a shared, idealistic vision for the educational building's future.

- Based on core team values, this vision guides actions.
- Brainstorm key objectives related to the project's values.
- Consider community strengths and long-term goals.
- Phase 2: Objectives
  - Define realistic short-term objectives with deadlines.
  - Align objectives with the joint vision.
  - Ensure objectives are SMART (Specific, Measurable, Acceptable, Realistic, Time-related).
  - Focus on objectives within the community's impact.
- Phase 3: Brainstorm
  - Encourage creative thinking within the core team.
  - Combine dreaming and realism.
  - Identify actionable ideas for the project.

### Take action

- Phase 1: Action Plan
  - Core team analyzes information from analysis and brainstorming.
  - Develop an action plan for the educational building.
  - Use voting technics to prioritize actions.
- Phase 2: Taking Action
  - Ensure awareness of actions and validation.
  - Clarify responsibilities.
  - Communicate progress within the community.

### Evaluate and disseminate

- What was the most successful moment until now? Why what is a successful moment? How can we make sure that kind of successful action continues to happen?
- What was the most difficult moment? Why what is a difficult moment? How can we improve ourself or the project to make sure it will not happen again?

N.B The evaluation stage is key not only for the core team and the community to realise whether or not the goals were reached and feel confident, but it can most importantly serve as case for future projects. Therefore you can imagine having your evaluation at the end of the project using various methods, Or, decide from the very start of the implementation to process to an assessment of the whole project and the

For the purposes of this document, we will focus on the “concrete implementation” stages. The full implementation framework is provided in Annex.

## 3.3 Take action

### Phase 1: Choose an action

Taking into account all the information the core team collected (with the analysis and the brainstorming), their members can now develop the action plan that will be used in the educational building. It can be difficult to decide together on which actions will be done. A good

and simple way is to mark every proposition and to make a silent vote with stickers that everyone can put on 3 or 5 actions they particularly like/want to do. Then you only have to choose the actions with most votes.

It can be difficult to decide which action will be done as a group. To help, try "dot voting" (silent vote). Use stickers to decide which actions will be chosen. Once chosen, make sure no one is frustrated by an action not being picked. If so, ask the person to express clearly why and talk as a group to decide if they think this action should be added. This way to work together is called "deep democracy".

Do you know **motivation is created by action**? For this reason, don't hesitate to make a test and go for small actions first, even if you don't feel completely ready to take action

### Take a step back

If you don't know where to start with your action, maybe it is too vague or maybe it is actually an objective. Don't hesitate to cut it into little steps and to make it more precise. Use the following approach to make sure all the actors and all the characteristics are taken into account:

For each action write down:

- which objective is it following,
- who is going to do this,
- is it an action of: awareness, education, communication, for the educational building,
- deadline,
- How to communicate about this action

You can make a table to help you with the analysis.

### Break it down

You should always break down an action. If an action on your plan is too broad, such as "Reduce waste tonnage", then you need to take a step back and consider what smaller actions are required to help you to reach this outcome. In this example, create separate sub-actions for each of the departments that contribute towards the organisation's waste tonnage:

- Catering: Audit current food waste volumes over 1 week
- Operations: Get waste and recycling tonnages for the previous year from the waste contractor
- Office: Put a paper recycling bin next to all photocopiers and printers
- Marketing: Create educational posters to show what can go into each bin and with information about the benefits of recycling

In this example, you can see what seems to be an action (Reduce waste tonnage) but that is actually an objective.

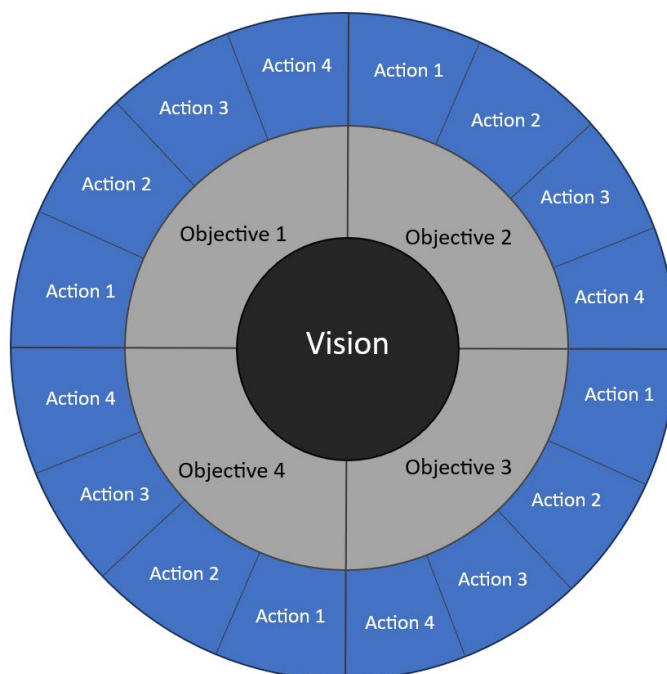


Figure 4 - Cristal mapping

The purpose of the cristal mapping is to have something visual to help you communicate about your action plan to the rest of the community. The cristal mapping is a great visual graphic tool to have an overview of the action plan.

### Phase 2: Taking action

In this stage, it should be checked if everybody is aware of the actions that are taken and if the actions are validated. Everybody should know about his responsibilities and the project team should not lose sight of the objectives.

#### Organisational and community actions.

List here all of the actions that will reinforce the community and help the project be inclusive and organized

"Precise for each action (if you can):

- what is the budget
- Who is involved
- what information is needed
- who is responsible
- the timeline
- what kind of motivation is intended
- how you intend on implicating a max amount of people
- how many times will you do it
- what material do you need"

**Educational actions (this involves both the students and the teachers)**

List here all of the educational activities that will take place that will promote awareness, critical thinking and empowerment for students and teachers"

Precise here:

- for how many students
- what is the goal
- what is the outcome intended
- which students (should start with the youngest first, or with a particular speciality ?)
- who will give the activity
- what is the budget
- the material you need
- the timeline (consider that some students wont be there next year)
- Same for teacher training

At this point of the implementation, it is useful to have workshop with different participants to build a common framework. For the organization of a successful workshop, the Kolb Circle (Figure 5) can be used.

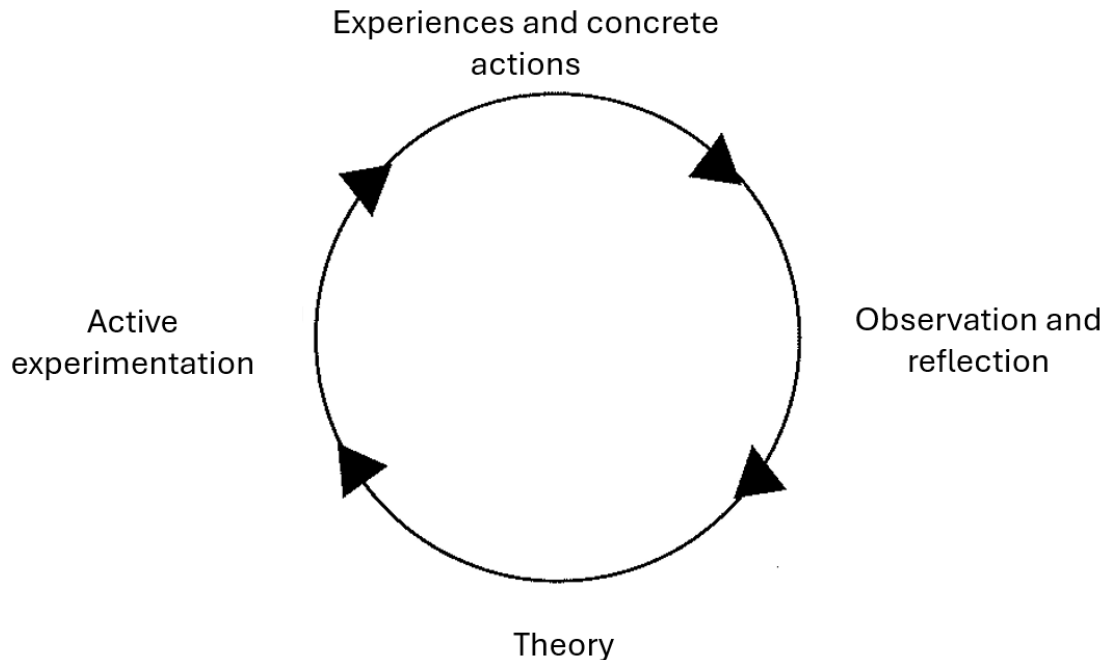


Figure 5- Kolb circle

Experiences and concrete actions are an important part of a learning process; life experiences enables us to learn.

- However, experience alone is not enough. Observation and reflection are important to build on this first experience (observing the environment and how it works, and reflecting on it, ourselves and our own behaviour).
- Next, we need to explore theory (frameworks, models, concepts explaining the connections and links linked to this knowledge).
- The next stage is active experimentation with the theory. This involves applying the theory to simplified situations...
- ... to finally come back to a concrete experience, which takes place in the real world, with all its opportunities, obstacles and complexities.

It is not necessary to start with the concrete experience; you can start at any stage of the circle. This will depend on the objective, the target audience, the audience's prior knowledge, the context, etc. Once the circle has been completed, the learner is ready to start a new circle. Ideally, therefore, a workshop should contain as many "learning circles" as possible, to increase participants' learning opportunities.

With our workshops, we mainly target changes 'within' individuals: knowledge, ideas, emotions, values, experiences, learning processes, intentions, etc. If a change in behaviour is targeted, it must be a one-off behaviour to be carried out in a short space of time (bringing back your old mobile phone to recycle it, preparing a local meal with your parents or class, cycling to school for a week, etc.).

These "individual learning processes" are an "important" but "insufficient" condition for lasting changes in behaviour, and therefore for lasting changes in our society. Despite this, workshops remain an (important) part of a process in which a school, an organisation or a company can engage. Achieving greater behavioural change therefore depends primarily on the wider process undertaken, of which our workshops are a part.

During the actions, **communicate about them in your building**. What are the following steps to do, what is already done, what are the action that is done for now? Use the same canal you used for the communication in the beginning of the project. Communicate about the action that is done now allow your community to engage themselves with you in that action.

### 3.4 Evaluate and disseminate

Once the actions are taken, these actions should be evaluated to develop a revised Green Action plan and to pursue the project on a better level. There are a few useful questions that can be used in all cases:

- Element 1: What were the learnings as a group, how did we collaborate (relevance of the community)
- Element 2: The steps and the process (efficiency)
- Element 3: The results (usefulness)

We can evaluate the above elements retrospectively and at the end of the project by answering the following questions:

- What did you evaluate and How? What was the sample (if quantitative)? Did you triangulate the potential results?
- As a group: What was the most successful and difficult moment until now? Why what is a successful and difficult moment? How can we make sure that kind of successful action continues to happen or not happen again?



- Do a KISS analysis (KEEP, IMPROVE, START, STOP) on those 3 elements:

- What was the most successful moment until now? Why what is a successful moment? How can we make sure that kind of successful action continues to happen?
- What was the most difficult moment? Why what is a difficult moment? How can we improve yourself or the project to make sure it will not happen again?

### Do not forget...

- Celebrate in a sustainable way
- Communicate the results widely
- Organize at various steps of the project, events that are organized by the community in an inclusive way and do a last big one at the end.

### Logic model for more precise impact assessment

In order to improve the community's project of any further project that would entail using this implementation plan, we propose to use the bellow model, a "Logic model" inspired from the process of theory of change. The purpose is to start from the intended overarching impact and to go step by step "backwards" to outcomes and then outputs. Once the outputs are detailed, these can serve to develop concrete indicators that can be assessed qualitatively and quantitatively. Using this model provides a more robust justification more any improvement and to promote any outcomes to a funding entity. It is strongly recommended that any assessment of the indicators, whether they are done via a survey, a focus group, biophysical indicators etc, are done at the start (even better before the start) in the middle of the project, at the end the project and after the project in done (a year or two after).

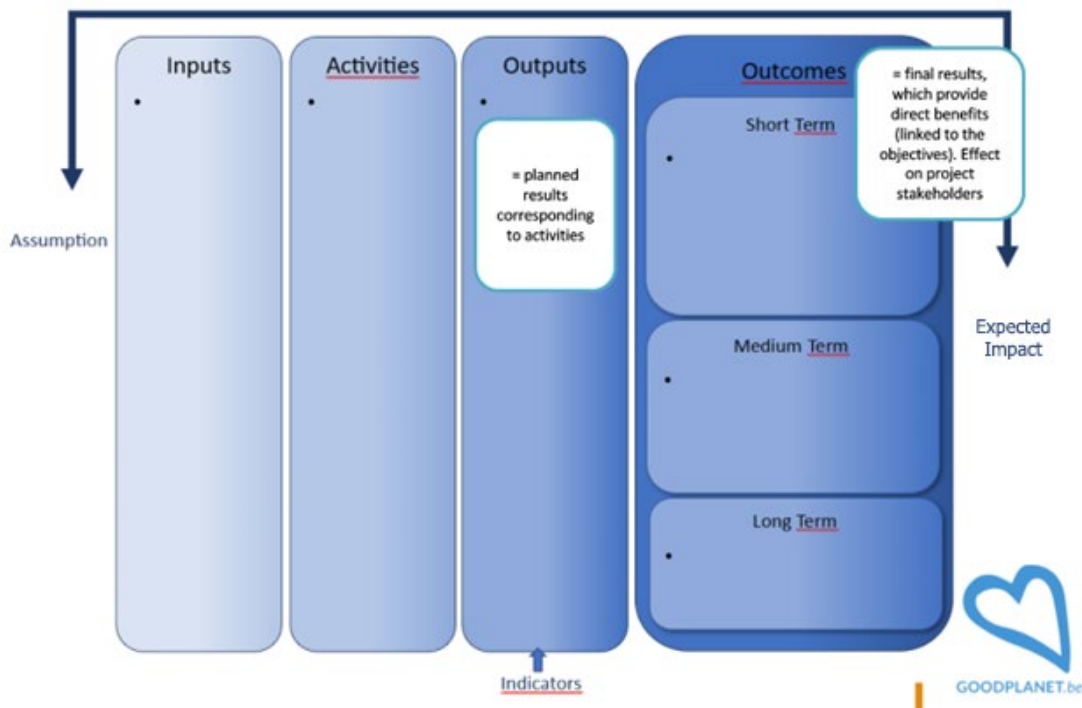


Figure 6 - Logic model

More concretely, NEB-LAB Eco<sup>2</sup>-Schools aims to create benefits for a larger community surrounding the educational building; it also aims to be a role model and provide step-by-step guidance for other buildings to follow suit. While social value output refers to the activities done by the organization, social value outcomes refer to long-term observed effects, in this case, sustainability. In order to quantify the multiple benefits and success of the project a Social Value Framework has been developed. Social value within the project aims to affect all generations within a community and to support the transformation of educational buildings toward low-carbon and climate resilience, based on social, technological, and financial innovation. The whole community is involved in supporting this transformative process. Figure 8 presents a step-by-step guide to implement the Social Value Framework within the NEB-LAB Eco<sup>2</sup>-School approach as a role model for other educational buildings to follow suit.

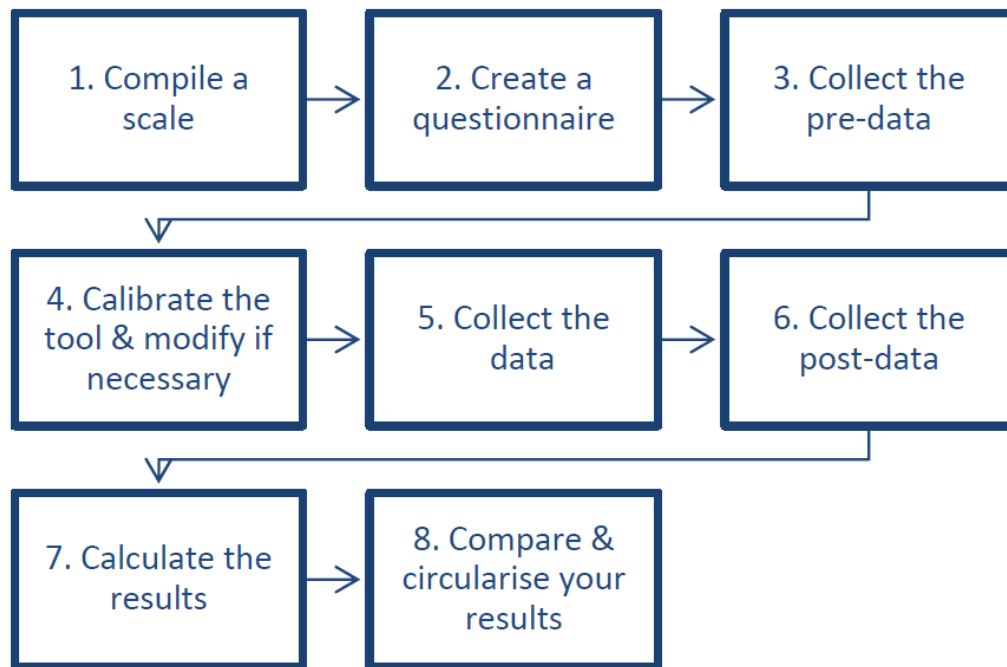
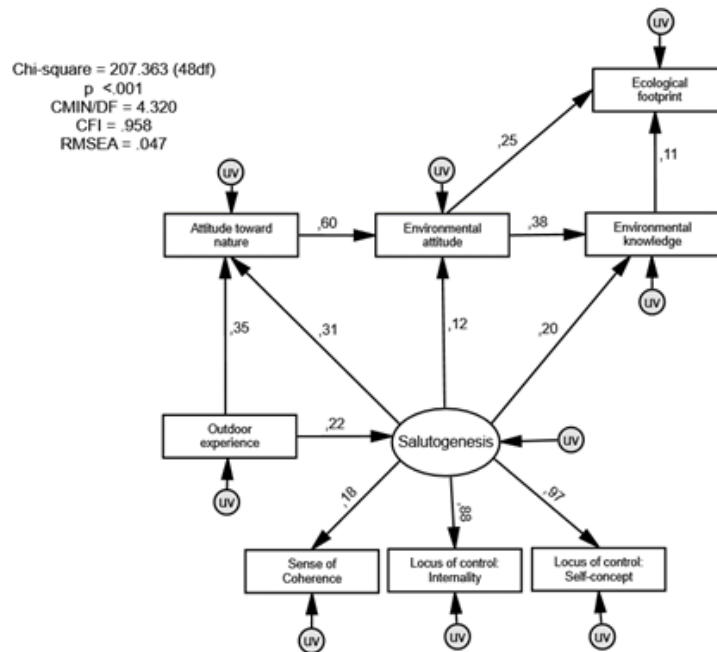


Figure 7 - Impact assessment of the Social Value Framework

Figure 8 illustrates the outcome of the pilot study of the proposed multidimensional model for sustainability education (as proposed in the D5.1 Social Value Framework and Self-Reflection Tools). The involved partners had applied the item set to their national audience (see below). It builds on and supports established findings in environmental education research with attitudes, knowledge, and behaviors at its core: Environmental attitude (i.e., people’s propensity to protect the environment or harm it as little as possible) affects the sustainability-related knowledge people gain and retain (Baierl, Kaiser, et al., 2022; Taube et al., 2021) and is a determinant for acting pro-environmentally (e.g., Kaiser & Byrka, 2015; Taube & Vetter, 2019). Attitude toward nature (i.e., people’s propensity to appreciate and enjoy natural environments) is also positively related to pro-environmental engagement (e.g., Clayton, 2003; Kals et al., 1999; Whitburn et al., 2019). More recent research has corroborated previous findings and identified a causal relationship between both attitudes: environmental attitude mediates attitude toward nature’s effect on learning about sustainability-related issues (Baierl et al., under review). As such, attitude toward nature is considered a predecessor for environmental attitude, knowledge, and behaviors.

Based on that knowledge, we need to learn more about both attitudes, particularly strengthening them through teaching. Since attitude toward nature reflects people’s use and enjoyment of natural environments, outdoor experiences only naturally support it. This refers to solitary and interpersonal outdoor experiences and incorporates outdoor teaching units or original objects used in lessons.



**Figure 8** - Multidimensional model for sustainability education; at its core are salutogenetic—health promoting—factors, being fundamental to attitudes which, in turn, enhance learning and pro-environmental engagement. Single headed errors reflect regression scores and variables termed uv reflect unobserved variables, acknowledging measurement errors

More interestingly, salutogenetic factors such as people’s sense of coherence and locus of control are directly related to attitudes and learning. Salutogenesis is the maintenance and improvement of human health through coping strategies and personal resource management (Lindström & Eriksson, 2005). So, there is some ratio that the more coping strategies a person has or the more stable they are in life, the more capacities they possess toward living sustainably. Therefore, such factors are integrated into the Education for Sustainable Development approach and reflected by the GreenComp framework. As such and in line with Figure 8, the stronger a person’s coping capacity (i.e., their salutogenesis), the stronger their attitudes and knowledge scores are.

Figure 8 depicts the variables linked with the complete data set, and the results hold for each country with only marginal differences in regression scores. So, the cross-cultural design supports the indicated relationships in Figure 1. This helps derive teaching recommendations toward sustainability. It suggests that we should fundamentally support salutogenetic factors such as people’s sense of coherence or locus of control in classroom settings. Based on this, we should strengthen both attitudes, with attitude toward nature strongly supported by outdoor experiences—solitary and interpersonal—and through enriching classroom teaching with original, real-life objects. After all, knowledge is vital but insufficient to change behaviors, supported by the regression coefficients in Figure 8. What we do need to focus on seems to be attitudes, outdoor experiences, and salutogenesis.

### 3.5 The role of the facilitator in the implementation process

Throughout the implementation activities the role of the facilitator is of primary importance. The facilitator of this social learning or design-thinking process is not the person who provides all the content or who is the expert. It's someone who supports and facilitates the process and the exchanges between participants. He also creates a group connection, motivates, gives confidence in his own abilities and generates hope in the participants. The coach must also offer the participants enough security and freedom to be creative and critical, and open up to values and emotions.

#### Offering security:

- By working on social cohesion from the outset
- By showing and supporting that differences are an asset
- Making provision for brainstorming, creative thinking and critical thinking to enable the process to unfold in a positive and respectful manner
- By providing structure: by defining the framework and structure, and by directing and structuring the meetings properly.
- By respecting the possibilities and limitations of participants, and dealing constructively with resistance
- By leaving room for the values and emotions associated with the subject

#### Offering freedom:

- By making ample room for all existing skills and perspectives, and by challenging them
- By taking decisions democratically
- Giving a lot of space to creative processes
- By giving the group the opportunity to make adjustments, to try things out, to fail and to learn from them.

#### Increase participants' action skills:

- Ensuring that sufficient and correct information enters the group
- By giving hope: we can make a difference
- By building confidence in one's own ability and in the "collective ability" of the group
- By giving people the desire and energy to take action together

### 3.6 “The school sustainable mobility plan” example

This section presents the example of the “school sustainable mobility plan” as a concrete example of a framework for implementation activities in the school context. Since 2006, “Plan de déplacement scolaire» supports groups in schools in drawing up and implementing a sustainable mobility plan (based on an audit of the school’s mobility strategy). The project provides the working group with the tools necessary to ensure the implementation of school mobility policy and strategy that will go well beyond the intervention of the organisation in charge of the project.

In order to do so, a step by step plan called “the pocket coach” was developed to help the school community to be autonomous.

### **The pocket coach step by step plan**

#### **Step 1: Get the right people together:**

There are many ways to get people involved. A working group meeting, a survey, an open letter, emails, a focus group, a presentation, a party, an open day, a film, an information stand. Is everyone involved? Teachers, management, volunteers, (grand)parents, students?

#### **Step 2: Analyse the situation:**

Where is the potential? What is already done in the schools? How many teachers or other personal are involved or interested in a sustainable approach to education and buildings. In the meantime, what efforts are we making, and is everyone aware of them? Which equipment would we need.

#### **Step 3: Have a vision:**

Where do we want to be in 10 years' time? What intermediate steps do we need to take to achieve this vision? What would we like a graduating student to say to the question: "What do you think about ...in your school?"

Taking the time and bringing together different points of view are the ingredients of creativity and a productive brainstorming session. The limits come later!

#### **Step 4: Find out about the options:**

Have we looked at the support offer from government entities, from the local administration, from relevant stakeholder? What already fit perfectly with what we want to do? What are the good ideas from other schools? What are the school's other working groups working on? Synergies to be found with health, nature and culture? What voluntary organisations have we already worked with? Who is aware of a new project in the neighbourhood?

#### **Step 5: Taking action:**

Action plan validated by the team? OK! Is everyone aware of the plan? Yes! Have parents and pupils been informed? Yes! Does everyone know who is responsible for what? **START!**

Don't lose sight of your objectives! Every action has its purpose.

#### **Step 6: Evaluate and value:**

What can we really be proud of? Shout it from the rooftops (on social networks)!

What will we do differently next time? How did we get closer to our dream? What administrative aspect should not be overlooked? Who deserves to be thanked?

### **Keep in mind**

We can also draw from the literature a number of tips and points of attention to help increase the impact of projects and ensure that participants work in a secure environment:

1. Beyond all the advice and points of attention that can be cited, one is more important than the others and stands out: a project will have an impact from the moment it is successfully implemented. It is therefore more important to be flexible

and to adapt to the school's culture to ensure successful implementation than to follow the project's stages and instructions to the letter.

2. If possible, it's even better if the WG's training is ongoing throughout the project, not just at the start.
3. It's better if the coaching/training focuses on how to perceive the community's needs and how to respond to them. This greatly encourages sustainability.
4. If the aim of the project is to establish itself in a neighbourhood, it's best to work in partnership with a structure that is already established. This saves an enormous amount of time.
5. It is important for the WG and the organisation to perceive the interest that the project will have for them (whether at a more local or more global level, e.g. for a better future).
6. It is important that the WG and the organisation see the project as being in line with their values.


**Very Important:** Working with young people on sustainable topics can create a lot of various emotions depending on how these are approached and dealt with. We hear a lot on eco-anxiety today (see....). One of the reasons behind such anxiety is the fact that a lot of the burden of entering an energy transition and creating a sustainable future is often put directly or indirectly on young people's shoulder. With phrases like, "the solution lies with future generations" "it's by raising awareness among the younger generations that things will change". The whole thing puts a lot of pressure on young people, who are already undergoing social, physical and psychological changes. As the famous children psychiatrist "Sophie Maes" says: *"Adults put young people in a situation where they have to solve, alone and without the proper tools, challenges that they themselves are not able to get past"*. It is therefore essential that a strong collaboration is ongoing between the adults and the youngest, so that they see an active implication of all ages at the same level.

## 4. Localised Implementation Plans

Through the implementation process, the school community will discover the various challenges, the bottlenecks and the opportunities that can arise from tackling such a core issue of reducing the energy consumption of educational buildings, whether it is through a different usage, a wide campaign incentivising intent to behavioural change or more physical structural change in the building infrastructure.

Whether the team accomplishes its initial projects they will discover the various topics and see how working together can make a difference. The importance is not the end goal but the process. Demonstrating the implementation of their plan could be used to promote not only the sustainability of educational building in a local community but sustainable citizenship and thus have a positive impact on local communities.

### 4.1 Ellinogermaniki Agogi

	Name of campus: Ellinogermaniki Agogi	Region of the campus: Pallini, Attica
	Sector: Primary Education	
	District buildings portfolio: School buildings	
	Target groups: 14-17	
	Link: <a href="https://www.ea.gr/en/index.asp">https://www.ea.gr/en/index.asp</a>	
Description of the vision of the pilot site project		
<p>EA is developing the Green School Living Lab concept to raise awareness on buildings energy efficiency to school students but also to the local community. EA aims to demonstrate that when schools partnering with their local communities and stakeholders, they could become agents of community well-being through their involvement in co-creative research and innovation on energy and resource efficiency in the school settings, inspired by the green school demonstrators. Exploring the interdependent relationship between the school, families and their community through an ecological systems perspective, the proposed interventions employ an interpretivist construct to demonstrate the importance of interconnected relationships as a mechanism for mobilising resources, strengthening social capital and building collective capacity. Develop citizen awareness raising activities spreading the concept of energy and resource efficient building and renovating and promote education and training for sustainability.</p> <p>The school has already in place a strategy towards energy efficiency of the school campus, that includes the construction of a new energy efficient building of 1500 m<sup>2</sup>, the renovation of the primary school building, the construction of a bioclimatic school canteen and a large scale solar park (2022) along with the purchase of electric school buses fleet (150 vehicles). The total foreseen investments go up to 5,5MEuros. The current total area of the school buildings adds up to 15,807m<sup>2</sup> (to reach 17.307.00m<sup>2</sup> in September 2023). and the energy consumption yearly is estimated at 1,8 GWh for the main complex of school buildings resulting to 1,1MtCO<sub>2</sub>e.</p>		
Your ambition and targeted progress (anticipated schedule)		
<p>EA team plans to integrate its pilot projects in the educational programme of the school. To do so, with the support of the Chamber of Quality, a series of testing activities have been designed and are implemented to introduce the energy efficient operation of the school canteen and of the school building to the school curriculum.</p>		

<p>Targeted progress:</p> <ul style="list-style-type: none"> <li>- By Dec.2024: Involve the whole school community</li> <li>- By Dec.2025: -High energy performance and energy savings (energy production of 1,5 GWh per year), Reduction of carbon footprint - Improved indoor environmental quality for the users – Development of innovative digital solutions for energy management (Anticipated 20% reduction in electricity consumption due to this) – Zero-energy School Canteen - Creation of “living-labs” and innovation clusters/social innovation/social cohesion- Smart energy grid synergies.</li> </ul>
<p>Primary purpose, program, and use of this project</p> <p>In the framework of the NEB-LAB project, EA has designed a large-scale pilot with several separate demos. The main focus of this intervention is the achievement of high energy performance and energy savings as well as the use of innovative and sustainable energy solutions. At the same time, the implementation activities aim to improve indoor environmental quality for the users. The focus of the pilot is the development of solutions for energy efficiency in school buildings (Green School Living Labs) through increased consumer engagement in energy saving practices and gamification. There are over 3000 daily users with a substantial energy consumption. Throughout the implementation activities of the NEB-LAB project, EA aims to demonstrate that when schools partnering with their local communities and stakeholders, they could become agents of community well-being through their involvement in co-creative research and innovation on energy and resource efficiency in the school settings, inspired by the green school demonstrators.</p>
<p>Who are the leading participants? (describe your “core team”, list the persons and their entities committed in the common success)</p> <p>Core team: 12 persons involved on 30/06/2024</p> <ul style="list-style-type: none"> <li>- Pilot site managers (Leader role, facilitate the process, guidance to success): Dr Sofoklis Sotiriou, Alexandros Pantazis, Nikos Zygouritsas</li> <li>- Communicate (Community engagement, open documentation, visibility and participation to all): - Dr Sofoklis Sotiriou, Nikos Zygouritsas</li> <li>- Learn (Teaching and learning, Climate education, learning-action process, skills recognition): Dr Sofoklis Sotiriou , Olympia Befas</li> <li>- Operate (Facilities and operation, sobriety, better understanding, use and maintenance): Takis Tsoumakis (teacher) and 5 teachers of skill labs</li> <li>- Renovate (Step by step material improvement of the school infrastructure and buildings): Fotis Mitsakis (Web App Developer) and Lazaros Kelesidis</li> <li>- Decide and support (School governance, commitment, supportive means, cooperative decision): Dr. Sofoklis Sotiriou</li> </ul> <p>Have the “core team” members signed the charter of commitment? <b>partly</b></p> <p>Has the “core team” agreed on common values, rules, rituals? <b>Yes</b></p>
<p>Describe your community (we focus on the real persons that are involved, not intentions)</p> <p>Community: 170 persons involved on 15/06/2024</p> <p>Age groups:</p> <ul style="list-style-type: none"> <li>- 12-15 years: 155 persons</li> <li>- 18-25 years: 1 person</li> <li>- 25-65 years: 14 persons</li> </ul> <p>Inclusion (diversity): 54% M, 46% F, 0% Disabled,</p>

Describe your community in a few words (stakeholders, entities, persons involved):

- Students 155
- Teachers: 5
- Professionals (facilitators, designers, operators, architects-engineers, experts...): 4
- Supportive institutions (public and private ex. city, foundation, for non profit educative programs, skills sponsors, R&D chair, co-investment...): 5

Management committee (board of the school, decision makers): 1

Which first actions are active for implementation? (prepared by the “core team” and enriched with the “community” in common workshops).

Focus on the development of Sustainability Citizenship

- Societal values are strongly formed by public models, this is also true for buildings. It is easier to gain people’s attention to the need for change, to significantly increase the quantity and quality of energy-efficient retrofits in Europe, when public authorities and governments are adopting the appropriate approach. It is therefore important to demonstrate exemplary solutions at frequently used buildings like schools, universities, and science centers. Europe is dependent on having high- quality education spaces for its future generations. The use of educational buildings as frontrunners will help to increase the market penetration of high-performance retrofit approaches. The future standard should be 100% carbon-free school buildings.
- Furthermore, the qualities of a zero-energy (or energy-positive) school, university, or science center, and the process required to create it, can encourage student learning (formal and informal) and student success, create healthy, high-performance learning environments, provide sound fiscal management of community resources, and demonstrate environmental leadership in minimizing the impact of the built environment. Schools and educational buildings in general can act as an incubator for innovation and creativity to drive sustainable design across Europe and beyond, which is also appealing and affordable for all citizens. Schools could act as hubs that will network practitioners from across disciplines and mobilize creative minds to reimagine how sustainable living could and should be in the future.

Action 1

**Name of the action: Green Canteen- Schools as Role Models for the European Bauhaus and the Food2030 Agenda**

Committed team: Olympia Befa, School Vice-Head (Responsible for the Skills Lab)

Katerina Riviou, Researcher (Responsible for the Green Canteen project and related initiatives)

Alexandros Pantazis (Responsible for the Green Canteen project and related initiatives)

Dr. Lukas Katikas, Researcher (Responsible for the Nature Based Solutions initiative)

Thalia Tsaknia, Researcher (Curriculum Developer and Instructional Designer, Responsible for Climademy, our teachers' training academy for environmental education).

Elena Kyriazi, Architect Engineer, Responsible for the construction of our new school building and the Green Canteen

Lazaros Kelesidis, Civil Engineer, Responsible for the operation and maintenance of the school infrastructure. He is coordinating the solar farm installation.

Pavlos Koulouris, Researcher (Responsible for the Schools as Living Labs Initiative, Expert in co-design processes and mechanisms)

Vassilis Liakopoulos, Researcher (Coordinator of the Schools as Living Labs schools’ network)

Students

150 Students from EA High School (13 years old), 5 students from EA Upper High School (16 years old), 5 High School Teachers

We are scheduling meetings with stakeholders to collaborate on the creation of an educational scenario, using the methodology of living lab. Our approach involves co-designing the activity with stakeholders and harnessing collective creativity to drive positive change. To start our project, we will first identify all our project stakeholders and categorize them based on their occupation into four groups: Learn, Operate, Renovate, and Communicate. After that, we will identify the core team of the project that will be responsible for the success of this project.

At present, our primary aim is to create a diverse range of activities associated with the canteen that can captivate and maintain the interest of the students. These activities will be designed in such a way that they not only promote engagement but also encourage active participation. These activities must be tailored to the needs of the students so that they are both effective and enjoyable.

Vision-building sessions were organized for the students also. One with a core team that will work on the subject realizing research project (5 students) while 150 students are working on the project in the framework of the skills lab activity (an activity that's integrated into the school curriculum).

1st meeting

Participants: Sotiriou, Kelesides, Riviou, Koulouris, Liakopoulos, Zygouritsas, Befas, Kyriazi, Katikas, Tsaknia  
Agenda:

- Presentation of the Project and the Local Activities at EA (Green Canteen and Solar Panels)
- Organization of the team and role allocation
- Definition of the Parameters to be measured
- Initial Plan of Action for the integration into the School Curriculum
- Indicative Project Ideas

2nd meeting

Participants: Sotiriou, Kelesides, Riviou, Liakopoulos, Zygouritsas, Befas, Kyriazi, Tsaknia

Agenda:

- Integration of the project into the school curriculum (Skills Labs, Lower Secondary School, Allocation of the theme to a group of students at Upper High School to be presented as a research project)
- Preparation of Educational Materials (Tsaknia and Befas)
- Update on the development of a user-friendly interface for providing access to the data
- Technical Work for the provision of the data related to the operation of the canteen

3rd meeting

Participants: Sotiriou, Liakopoulos, Tsaknia, Befas, Tsagogeorga and a group of 5 students from the 1st class of Lyceum

Agenda:

Definition of the Research Project

- Plan of Action and Research Questions
- Provision of reference materials  
The task is being coordinated by Loukas Katikas with the support of Olympia Befas (vice-head of the school).

The project involves 150 students from the 1st class of Junior High School, who participated in 8 one-hour-long interventions from January 10th to January 30th. The focus of the project was on the energy efficiency of the canteen, and proposals related to Nature-Based Solutions will be presented.

The aim of the activity and the series of workshops is to demonstrate how the school building could be transformed into a learning hub for the promotion of sustainability citizenship. The focus is to support the educational community of the building to see how innovative projects could be integrated into the

curriculum and to act as reference points for the school community, the local community, and for collaboration schools as well.

The selection of the school canteen as the reference point has been done for two main reasons:

- a) The energy used for catering facilities amounts to around 10 percent of a school's energy costs.
- b) In almost every school there is a school canteen so the project could act as a best practice for other schools as well.

In EA the new bioclimatic canteen building is part of the school strategy towards the transformation of food systems that require low-carbon, circular, and planted-based approaches. The school operates an organic school garden that apart from acting as an open educational environment for all students is producing a significant amount of vegetation being consumed in the school canteen. The building-embedded photovoltaics will generate enough renewable energy on-site to cover 100% of its energy needs on a net annual basis.

The school stakeholders aim to transform the canteen into a learning hub for the students to test solutions for reducing energy, and water use and for interacting with the food systems. Through making these efforts highly visible, this leadership inspires a larger movement that significantly accelerates the adoption of a sustainable lifestyle – first around energy, but also other critical areas like food, use of resources, and relationship to the natural world.

The canteen is in the central campus plaza which is bridged over to interconnect the primary and secondary school buildings. The bioclimatic canteen building is part of the school strategy towards the transformation of food systems that require low-carbon, circular, and planted-based approaches. The school operates an organic school garden that apart from acting as an open educational environment for all students is producing a significant amount of vegetation being consumed in the school canteen.

We aim to take advantage of the major renovation project that is under development to enrich the environmental education program of the school by using the infrastructure as a place of experimentation and learning. School will adopt the three-step approach: Design, Deliver, and Diffuse of New European Bauhaus that is proposed by the project:

1. Diagnose and address energy inefficiencies at the school canteen building level by optimizing existing systems and adding new technology layers where required.
2. Once the school canteen running as efficiently as possible, EA will open to the wider world and will act as a demonstration building for other schools and the local community.
3. Once the school canteen is open to the wider world, it will be integrated into the wider school energy ecosystem so it can positively contribute to local infrastructure and flexible demand-side operations.

We believe that co-designing an activity is crucial for achieving a perfect outcome. Our long-term goal is to renovate the canteen and transform it into a learning hub for everyone interested in sustainability. Currently, 150 first-grade elementary school students (ages 12-13) are enrolled in this program. At the same time, 5 students from the upper High School are actively participating in a research project on the topic.

## ACTION 2

**Name of the action: Solar Panels- Schools as Role Models for the European Bauhaus**

Committed team: Olympia Befas, School Vice-Head (Responsible for the Skills Lab)



Dr Sofoklis Sotiriou, Head of the Research and Development Department (Responsible for all Projects)  
Dr. Loukas Katikas, Researcher (Responsible for the Nature Based Solutions initiative)

Nikos Zygouritsas, Researcher (Responsible for the Solar Panels project and related initiatives)

Vassilis Liakopoulos, Researcher (Coordinator of the Schools as Living Labs schools' network and responsible for the educational club after curriculum)

Alexandros Pantazis, Researcher (Responsible for the Solar Panels project and related initiatives) Fotis Mitsakis, Web Designer (Responsible for creating an educational web app)

Konstantina Katradi, Lab assistant of Elementary School, (Responsible for the experiment supplies)  
Lazaros Kelesidis, Civil Engineer (Responsible for the operation and maintenance of the school infrastructure. He is coordinating the solar panels installation.)

Lazaridis, Iliatoras.eu, (Responsible for the maintenance of solar panels platform – Kostal App)

Miltos Papadopoulos, Iliatoras.eu (Representative of Iliatoras.eu)

Takis Tsoumakis, Teacher (Responsible for the evaluation of the Scenario) Four Teachers (Responsible for teaching in Skill Labs)

Short description of the implementation (expected): We are scheduling meetings with stakeholders to collaborate on the creation of an educational scenario, using the methodology of living lab. Our approach involves co-designing the activity with stakeholders and harnessing collective creativity to drive positive change. To start our project, we will first identify all our project stakeholders and categorize them based on their occupation into four groups: Learn, Operate, Renovate, and Communicate. After that, we will identify the core team of the project that will be responsible for the success of this project

At present, our primary aim is to create a diverse range of activities that can captivate and maintain the interest of the students. These activities will be designed in such a way that they not only promote engagement but also encourage active participation. These activities must be tailored to the needs of the students so that they are both effective and enjoyable.

1st meeting - Initiation of the project

Participants: Dr. Sofoklis Sotiriou, Dr. Loukas Katikas, Lazaros Kelesidis, Fotis Mitsakis, and Alexandros Pantazis.

Agenda:

- Designing a web app for the education scenario
- Displaying a comparison between the energy production of solar panels & Solar radiation of the atmosphere
- Calculation of solar panel efficiency using these data points

2nd meeting – Planning the implementation of Educational Scenario.

Participants: Olympia Befas, Dr. Loukas Katikas, and Alexandros Pantazis

- Agenda:
- Establishing groundwork for integrating the scenario into the curriculum
  - Discussion on curriculum integration strategies, and skill lab material alignment
  - Attendees' roles in implementation and support

3rd meeting - Planning the implementation of Educational Scenario.

We will collect feedback from the school's teachers in this meeting and collaborate to develop parts of the scenario based on educational objectives.

What are the project's (expected) overall goals in energy needs decrease, smart use of the buildings and with renewables NetZero self consumption?

Goals related to energy needs decrease: We are inspiring students to mitigating their energy demands by unplugging devices when they are not in use and by closing the light when exiting a space (eg. Classroom, labs, pc-labs, conservatory etc.)

Goals related to smart use of the buildings: We will adjust a monitor in the school where students will be informed about the energy yield of the solar panels and the energy consumption of the school.

Goals related to renewables NetZero self-consumption: We have implemented 931 solar panels with total energy power of 418,9 kW.

Additional Special Project Requirements Not Already Covered

We will use the 5E Model (Engage, Explore, Explain, Elaborate, and Evaluate) for the scenarios that are going to be implemented in the workshops

References to the green action plan and the dedicated Miro online whiteboard (schematic representation of the current process)

The EA team has used the dedicated Miro online whiteboard to share the progress of the implementation activities

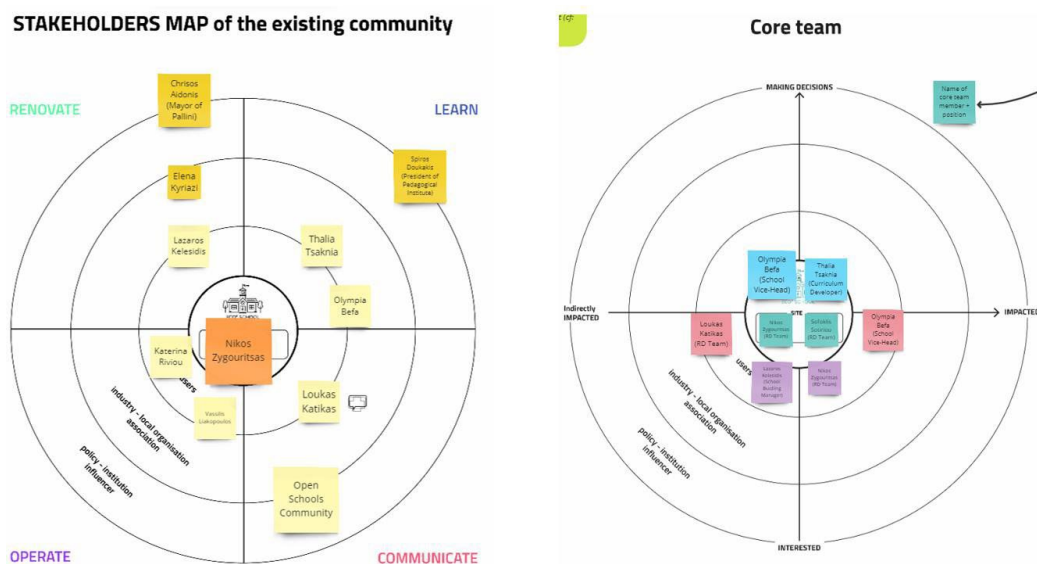


Figure 9 - Stakeholders map and core team of the Green Canteen

At the Green Action Plan of EA, a set of KPIs is presented. The following table presents the Technical KPIs – Towards a Zero Energy School Campus

Site (surface)	Current Consumpti	Future Production	Energy Reductio	Average Energy Consumption	Directive 2010/31/EU for retrofitted /
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	on (kWh/year)	(kWh/year)	n (kWh/year)	After Retrofitting (kWh/m <sup>2</sup> year)	positive-energy level buildings for new constructions <sup>1</sup>
EA – Campus (15.807m <sup>2</sup> )	1.800.000		540.000 (Heat Pumps, IoT)	79	A+ (75-90kWh/m <sup>2</sup> year)
EA - Solar Park (5.000m <sup>2</sup> )		1.800.000		-113,87	Zero Energy
EA – School Canteen (New)	-	6.720	-	0 (New)	Zero Energy

### Pedagogical KPIs – Teaching for Sustainability Citizenship

Here are the variables that can be assessed through the measurement tool:

We expect medium-sized improvements in the students' attitude (attitude toward nature and environmental attitude) scores

- The students will improve their attitude toward nature. We expect a medium effect.
- There will be positive changes in environmental attitude, presuming a large effect size.

Students will change their Psychological Distance scores on a medium level, as sustainability issues will be felt more relevant and closer to their lives.

- Students will mostly improve on their temporal/geographical/social/hypothetical Psychological Distance scores.
- Students will improve their overall salutogenesis scores by small effects.
- Students will improve their self-efficacy scores moderately.
- Students will strengthen their connectedness to nature by small effect sizes.
- Through strong study participant engagement, they are expected to improve their locus of control scores by at least *small* effect sizes.

The study participants will decrease their ecological footprint scores.

- The ecological footprint scores will mostly improve in the food/ electricity/ other good consumption/ transportation domain.

If knowledge is assessed: The study participants will increase their environmental knowledge scores. We expect large effect sizes.

- The study participants will increase their system knowledge scores. We expect large-sized improvements.
- The study participants will moderately gain action knowledge and effectiveness knowledge.


<sup>1</sup>[https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/nearly-zero-energy-buildings\\_en#national-plans](https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/nearly-zero-energy-buildings_en#national-plans)

## Communication and dissemination activities of the project

A series of events (i.e. workshops) have been planned both for the school community (teachers, students, parents) but for the whole local community also.

Furthermore, the EA presented the NEB-Lab project but also the implementation activities taking place at its campus during the New European Bauhaus Festival 2024 in Brussels.

## 4.2 Microville 112

	<b>Eco<sup>2</sup>-Campus on Microville 112</b>	<b>Courcy, France (Grand Reims)</b>
	<b>Sector:</b> non-formal education	
	<b>District buildings portfolio:</b> Educational third place for schools	
	<b>Target groups:</b> Elementary, middle, high schools, social centers, higher education.	
	Link: <a href="https://eco2-schools.eu/eco%c2%b2campus-microville-durable-france/">https://eco2-schools.eu/eco%c2%b2campus-microville-durable-france/</a> ; <a href="http://www.microville112.org">www.microville112.org</a>	

### Description of the vision of the pilot site project

The Eco2-Campus, installed in the heart of the Microville Durable<sup>®</sup> 112 (former military airbase), presents a great opportunity for the region; to develop with nearby entities (primary schools, middle schools, high schools, social centers, higher education and continuing education schools) educational project being developed both locally and by immersion in the heart of the Climate renovation of a pilot school working as a hub open on the Greater Reims area (neighbourhoods, villages).

It offers day-use access to multi-use educational spaces (classrooms, workshops, project room, documentation center, work-meeting room, exhibition room, outdoor spaces, demonstrators of innovative solutions, training site), devices and resources facilitating co-learning in action of the basic principles of Climate education.

- Green-Comp.eu : <https://op.europa.eu/fr/publication-detail/-/publication/bc83061d-74ec-11ec-9136-01aa75ed71a1/language-fr> ;
- Green Schools UNESCO : <https://unesdoc.unesco.org/ark:/48223/pf0000390028> .

It responds to the need to develop educational projects in co-learning-action via spaces for testing, sharing resources and enriching best practices. The educational teams retain the freedom of the activities they wish to develop.

**Diversity of the environment:** the site was a “micro-city” with the diversity of its constructions and its occupants who carried out a permanent and autonomous activity there. An exceptional set of buildings, infrastructures and spaces which will be renovated and reused in the form of a sustainable Microcity<sup>®</sup>; a climate-neutral and resilient village district of 2050, an open place for cooperative experiments, demonstration and incubation of the best initiatives-solutions in the territory and at the European level in a systemic approach to sustainable development.

It presents both:

- the characteristics of forest vegetation in the process of reclaiming the soil, an exceptional biodiversity that we are rediscovering and which we must relearn how to take care of,
- buildings, infrastructure and space renovated following the SDG approach, with new uses and shared services.

**It is close to a large city, Reims:** this aspect, which could appear as a disadvantage, but it is a real plus. Indeed, we know the difficulties that teachers have in organizing group trips, which are often expensive, to take advantage of places suitable for environmental initiation (most of them remote). These difficulties often prove crippling, they significantly limit school projects that go in this direction.

About 15 minutes from the center of Reims, located on a well-known route well accessible by road (tomorrow the tram, TER and greenway), the Microville 112 is an exceptional “green site” close and secure, served by the transport network at the demand of Greater Reims (depending on the intensity of use, the same coach can transport groups from several schools at shared cost).

**The Eco2-Campus, an educational third-place for immersion experimentation, meets a real need for a local hub adapted to welcoming groups of students, whatever their level.** In its development, it can cover with teaching teams a wide diversity of subjects, both ecological and technical, to raise students' awareness of the new behavior-skills to be developed for tomorrow (regenerating resources and ways of acting: biodiversity, food, circularity, energy, mobility...).

**A dynamic already underway:**

- Continuity with the project initiated by the Nature Section of the Amicale Mermoz de Courcy (planting a Microforest): this association has committed to the elementary schools of neighboring Courcy and Brimont, in conjunction with teachers and financial support from the MACIF foundation, a series of animations on the environment and its protection. This project led, among other things, to the planting of a “Miyawaki” micro-forest in the village of Courcy.
- Exemplary case of the Collège du Mont d'Hor in Saint-Thierry (at the level of the Reims academy), labeled E3D level 2 and aiming for level 3: carries out a global Climate education project, implementing actions on the territory with the discovery of eco-transition professions.
- Connection to the Sustainable Development educational policy of Reims Academy (E3D establishment network) and Lab 17bis (open place for shared initiatives with a facilitation team and shared resources e.g. Canopé, Edurénov, etc.).
- Link with Climate resilience awareness policy (PCAET) of CU du Grand Reims, Dept. Marne and Grand Est Region.

### Your ambition and targeted progress (anticipated schedule)

**Your ambition explained in a sentence:**

Start an Eco2-Campus, an educational third place that allows schools, neighbourhoods, villages to explore the diversity of initiatives and possible learnings at the heart of the Climate renovation of a Microville durable® (sustainable microcity) [www.microville112.org](http://www.microville112.org).

- Test a new offer of spaces for learning, educational devices and resources that facilitate co-learning in action the key principles of “Education for Climate” (adaptation to global warming, Sustainable Development Goals, ecological and social sustainability, positive impact of our cooperative actions).
- Gradually allow interested schools, colleges and high schools to develop their educational projects, benefiting from immersion outing days in this educational third place. Spirit is the place is open to the community for supporting a cooperative network of schools, neighbourhoods, villages.

**Targeted progress:**

The “T2” building at the heart of the Sustainable Microville®112 will be the start-up “totem” building of the Eco2-Campus, which will gradually become a third place open to the academic world and the educational community.

**By December 2024:**

- **In 6 months, the ground floor of the T2 building is converted for “transitional occupancy” with its first functionalities:** ambition is to install 1 reception area, documentary-resource center, 1 project room ( co-design), 1 work room (meetings), 4 classroom-workshop rooms, 1 multi-purpose exhibition room, 1 foyer room (multi-stakeholder/3 generations to stimulate friendly exchanges), 1 locker room- sanitary facilities (lockers, benches, toilets, sinks, showers, bidet-drain).
- **By start of the new academic year, the intention is to create a for nonprofit association that will embody the Eco<sup>2</sup>-Campus and develop its services with as target to grow a territorial living-lab** (by establishing a



partnership with volunteer schools in the Greater Reims area and linking with other initiatives-projects in the cross border region North-East France, Benelux, DE, CH).

- **In September 2024 it will already be possible to accommodate around fifty students in the first 2 workshop-classes** (multipurpose to allow work in lecture situation, in groups, practical experiments, etc.).
- **First educational activities at the Eco<sup>2</sup>-Campus are willing to start in the form of an experimental project** by partnership with association “Nettoyons et préservons la nature” and Foundation MACIF Grand Est (=3 months test that will involve CM1-CM2 classes from the fundamental school of Courcy and 6th-5th grade students from the Lycée du Mont d'Hor).
- **In the fall, the interior and exterior spaces of the T2 building will be gradually activated** (with layout and equipment adapted to teaching).
- **Depending on the commitment of public stakeholders (start cooperative budget), we are preparing first outdoor spaces for Climate education:** a green courtyard for “outdoor classroom”, a “workshop place” (shelter for educational activities linked to the outdoors and starting point for first educative pathways in an “educational land area”) and a “courtyard for artistic workshops and work exhibitions” (along “Maître Ouvrier building” = start of a New European Bauhaus cultural center), a provisory “educational solar boiler room” (dismountable installation for testing a 100% solar hot-cold-electricity NetZero energy renovation).

#### By December 2025:

From 2025, the Eco<sup>2</sup>-Campus will develop a complete offer step by step, that will grow with the implementation of the Climate renovation Green Action Plan (cf. 3 key steps 2024-2025-2026) :

- In December 2024 there will be a first General Assembly of the for non profit association Eco<sup>2</sup>-Campus, that will celebrate the results of first tests, share the strategic orientations and commit by affecting dedicated resources and cofunding by the mean of a cooperative budget for step 2 implementation by the end of 2025.
- Fruitful contacts are established for the development of the Eco<sup>2</sup>-Campus as a territorial living lab with follower schools and partner host cities in the Greater Reims area and North-East France cross border region.
- Opportunity to obtain official recognition of a local representation of the NEB-LAB (NEB FACILITY call 2025).

### **Primary purpose and program (steps) of this project**

#### **Describe the concerned building(s), multifunctional uses and configuration(s):**

The “T2” building at the heart of the Sustainable Microville<sup>®</sup>112 will be the start-up “totem” building of the Eco<sup>2</sup>-Campus, which will gradually become a third place open to the academic world and the educational community.

In this totem building, we are leading a Climate renovation co-designed by the Community, with the commitment to reach a NetZero energy goal with 100% renewable heat-cold and electricity in self consumption (solar, wind, smart use, circularity).

The project is developed in 3 key steps :

- **Step 1 (2024): temporary reuse of the existing space with first learning-action activities, small demonstrative test environment** (eg. “terrestrial educational area” for outdoor learning , learning prototype of 100% solar boiler room for heat/cold and electricity, “project room”, smart use in classroom-workshop...).
- **Step 2 (2025): first investment on the T2 building retrofit project** (renewables, contactless smart switches and sensors, interior design for multifunctional use, furniture and exploratory equipments) and start of a renovation plan of T3 building as a “worksites school” with access to schools and visiting groups.
- **Step 3 (2026): Development of the Eco<sup>2</sup>-Campus with a multifunctional “bamboo solar greenhouse extension”**, annex buildings and extended outdoor environment equipment.

#### **What areas are concerned by the Climate renovation process?**

**The T2 building** (former Military educational building renovated in 1990, that will be reused and retrofitted in a simple efficient reduced consumption and renewable energy approach).



**The T3 building** (former Military educational building same as T2 building but not renovated since 1970, that will be renovated with a demonstrative NetZero sustainable renovation with biosourced-circular materials, green walls, smart lighting and contactless low voltage electricity, natural air refresh and active heat/cold protection, 100% renewables in self consumption...).

**A newbuild multifunctional “bamboo solar greenhouse extension”** that will link the T2 building (Eco<sup>2</sup>-Campus) and “Maître Ouvrier” (NEB Cultural center).

Other annex buildings and extended outdoor environment equipments will be co-designed.

### **What areas are concerned for implementation of the Climate Education learning-action?**

Creation of learning spaces capable of welcoming groups of young people, discovery classes:

- **Axis 1) Nature, fauna, flora, climate and natural cycles**, in an exceptional place that has become wild again after having been occupied by man (inventory and conservation measures of biodiversity, nursery to save species-seeds, planting of hedges -nourishing groves, permaculture, etc.);

- **Axis 2) Eco-citizenship, change of posture and behavior** (documentation-exploration, questioning, new imaginative stories, co-learning in actions of sober, circular, renewable offers-solutions, recognition and celebration of achievements, evaluation- improvement, transmission to prepare a carbon-free world that respects living things;

- **Axis 3) Discovery of professions, tools and know-how via “test activities” and immersion on a “training site”**, (reconnection with the territory, local professions and know-how, testing knowledge gestures on real projects, opportunity to give meaning to the choice of orientation, outlets for a positive future that makes sense).

From 2025, the Eco<sup>2</sup>-Campus will develop a complete offer that will be tested and consolidated progressively:

- **Spaces suitable for welcoming groups:** with a “**project room**” (immersion in a 3-generations community in learning-action), “**resource-documentation center**” (provision of tools and instructions shared educational activities, e.g. production of a journal and video capsules published on the Eco<sup>2</sup>-Campus YouTube channel and social networks, etc.), “**classrooms and workshops**” (they will be fitted out and will evolve depending on the uses), a “**large multi-use greenhouse**” (cooperative café and New European Bauhaus cultural center, terrace, thematic exhibitions and school work, augmented visualization model of the Sustainable Microville<sup>®</sup>112, educational platform and mezzanine for group activities), “**locker rooms and toilets**”...
- “**Outdoor classroom**” type outdoor space, managed in a participatory manner with students supervised by the educational team (outdoor educational furniture, green schoolyard, discovery of biodiversity and natural cycles), first eco experience -citizenship (understanding the issues at stake in a territory, questioning and transforming our actions for the protection of the living);
- **Courses and resources intended for teaching in a natural environment** (“educational land area” shared with courses and activity stations adapted to educational needs);
- **Permaculture plots, nursery hedges and kitchen workshop** (permaculture design, agroforestry, food chain up to transformation-conservation, short circuit approach and seasonal menus of a “bio-canteen”);
- **Manufacturing-repair fablab with shared educational tools and materials** (discovery of tools and techniques with their application for different “test activities” and contributory actions in cooperation for the development, maintenance and improvement of learning spaces);
- “**Training site**” (secure spaces allowing small groups to discover professions and innovative technical solutions better suited to climate renovation, to regenerate resources and methods of action, e.g.: low-carbon eco-renovation, self-consumed renewable energy, shared mobility, zero waste, etc.);
- “**Accommodation**” for groups, trainers and researchers (ultimately, depending on the evolution of reception, it is possible to consider stays of several days on site by changing the accommodation offer to intended for staff in training towards a “green class” type offer, benefiting from the equipment of Microville 112, e.g. catering, etc.).

**Who are the leading participants? (describe your “core team”, list the persons and their entities committed**

**in the common success)**

Core team: 10 persons involved since 21/12/2023

- Pilot site managers (Leader role, facilitate the process, guidance to success): Christophe BARTHOLEYNS, Patricia AUROY (AS&E, SCIC M112);
- Learn (Climate education, learning-action process, skills recognition): François JOLLY, Chantal GUILLAUME, Muguette SIRI (citizens association AGORA M112) + Antoine MAIGRET (Académie de Reims);
- Communicate (Community engagement, open documentation, visibility and participation to all): Etienne PINTA, Régis GONNET (citizens association AGORA M112);
- Operate (Facilities and operation, sobriety, better understanding, use and maintenance): Christophe BARTHOLEYNS (AS&E), Jean-Marie SOHA (citizens association AGORA M112) + Geoffrey POTIER (LAB17bis);
- Renovate (Step by step material improvement of the school infrastructure and buildings, Worksite school process): Christophe BARTHOLEYNS (AS&E), Armelle LEJEUNE (AFPA Grand Est);
- Decide and support (School governance, commitment, supportive means, cooperative decision): Martine JOLLY (Mayor of Courcy, SCIC Microville112 supervisory board), Jean-Pierre BARRE (Deputy mayor of Courcy), + Régine LAFONTAINE (citizens association AGORA M112), Jérôme CORDELLIER (SCIC Microville112).

Have the “core team” members signed the charter of commitment?: Yes

Has the “core team” agreed on common values, rules, rituals? : Yes

Explain: The core team is composed by members that are bringing in common complementary understanding, skills and experiences, building the Eco<sup>2</sup>-Campus project on a just-safe common pathway towards sustainable learning-action, bridging biodiversity and circular sobriety by codesign of an Educational third place that will make it possible to live in immersion and distribute forward looking Climate renovations of schools in the Grand Reims area. They have taken part to the 6 codesign workshops (preparative phase) and are regularly present by the online meetings (1-2h weekly ritual). Together they are strongly committed with the values of the New European Bauhaus and currently develop the project in all its dimensions (even at policy level and on the ground first tests space arrangements).

**Describe your community (we focus on the real persons that are involved, not intentions)**

Community:

~60 persons have been associated through 6 codesign workshops January 2023-April 2024 (politics, facilitators-designers, public servants, inhabitants of Courcy-Brimont, retired teachers, educators, students, professors, experts, architects...).

Age groups: 22-68 years (~60 persons).

Inclusion (diversity): Core Team = 55% M (6 pers.), 45% F (5 pers.), Community = ~60% M, ~40% F.

**Which first actions are active for implementation? (prepared by the “core team” and enriched with the “community” in common workshops).**

**ACTION 1**

**EDUCATIONAL THIRD PLACE AREA FOR VISITING SCHOOLS**

**“CLIMATE EDUCATION – CO-LEARNING IN ACTION”**

**Name of the action:** Educational third place for visiting schools “Climate Education – co-learning in action”

**Leader:** Association “AGORA M112” (Citizen Collective Microville112, Courcy)

**Committed team:**



- François JOLLY (enseignant retraité, secrétaire de l'association « [AGORA M112](#) »),
- Chantal GUILLAUME (retraîtée, trésorière « [Nettoyons et Préservons la nature 51 à Courcy](#) »).

**Short description of the implementation (expected):** A first exchange with the AGORA-M112 association, the Courcy schools ([elementary school of Courcy village CE2 to CM2](#)) and the [Mont d'Hor middle school in Saint-Thierry](#) (6th-4th) highlighted the double opportunity to register in support of existing projects;

Project 1 (Courcy village elementary school):

- **Knowledge transfer and monitoring of the Microforest in Courcy**, a project which was worked on by students who will enter 6th grade at Mont d'Hor college.
- **Handing over to the rising classes, interest in being able to involve the rising classes both in observing the Microforest and in discovering the natural Biodiversity as it has developed over the last 12 years on the closed Military Air Base 112.** The students will be able to participate with families in an inventory, the co-design of a plant protection plan, the conservation transplantation of plants and young trees, which can be reused on the Microville112, or also in the village (planting hedges, trees, biodiversity, incredible edibles...).

Project 2 (Mont d'Hor college in Saint-Thierry):

- **Transfer of knowledge between middle school students as part of the E3D course**, via a welcome and integration day at the start of the new school year (Renaissance Ecological Fresco, Mont d'Hor forestry course, careers forum and internship scholarship, design of benches for villages).
- **Mobilization on a new transversal project**, the opportunity to create an [innovative "Educational Land Area"](#), which can be designed and tested on the [Eco<sup>2</sup>-Campus on the Sustainable Microcity<sup>®</sup>112](#). This innovative educational land area could then be used by the schools-colleges of Greater Reims, by developing a diversity of educational courses-modules. This could also lead to the development of a network of land-based educational areas in the Marne department (or even beyond at the Reims Academy and cross-border).

**Schedule (Plan the start date, the first tests, the substantial completion dates...):**

Start date: from May 14 to June 28, 2024 exchanges with;

- Lab17bis of the Academy of Reims (May 14), Edurenov, réseau Canopé (June 25)
- Courcy elementary school (May 27),
- MACIF Grand Est (June 13), confirmed. continuity of the partnership with the association Let's Clean Up and Preserve Nature,
- Mont d'Hor middle school in Saint Thierry (May 15, June 14).

First tests :

- July to August 2024: Test of transitional layout of the Eco<sup>2</sup>-Campus ("project room", "classroom-workshop", "cloakroom-sanitary facilities", "outdoor educational area", "discovery area of the nature", educational material).
- September to December 2024: Educational experimentation with "Let's clean and preserve nature association".

**Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely):**

- Objective 1) Transmission of knowledge of the "Microforêt de Courcy" project between 6th and CM1-CM2 classes (September 2024).
- Objective 2) Development of new "green skills" put into action, classes 5th-6th, CM1-CM2 (Dec. 2024).

**Indicators:**

- Co-production of an evaluation grid using the 12 criteria of the European sustainability skills framework "Greencomp.eu", the evaluation could take the form of recognition of prior learning (Open Badges).

**Relation with other targeted actions (short describe the interaction):**

- Action 2 "Communication" (Young reporters for the environment challenge),
- Action 3 "Renewable energies-sobriety" (water heater and solar oven test animation),
- Action 4 "Training project" (observation measures-nature protection, zero waste).

**Realistic project needs (accessible resources, time, persons, budget):**

- Human resources (volunteers), educational resources and test start-up budget are being defined.

**ACTION 2****COMMUNICATION, PERMANENT DOCUMENTATION, COMMUNITY IN ACTION****“YOUNG REPORTERS – SHARED RESOURCES – PROJECT ROOM”**

**Name of the action:** Communication, permanent documentation, community in action.

**Leader:** Association “AGORA M112” (Citizen Collective Microville112, Courcy)

**Committed team:**

- Etienne PINTA (retired from Orange, linking person, citizens association « [AGORA M112](#) »),
- Régis GONNET (retired, volunteer teacher Orange, citizens association « [AGORA M112](#) »).

**Short description of the implementation (expected):** From the beginning of the Erasmus+ project, the pilot site manager has started a permanent documentation of the Eco<sup>2</sup>-Campus project with regular short communications on the social networks (mainly LinkedIn, statistics record 150 to +750 reads of the posts within 48h). But this is followed by a large community.

Project 1 (targeted communication towards village of Courcy and starting local community):

The “core team” is willing to test from September 2024 a targeted communication towards the village of Courcy and starting local community of schools and to be involved stakeholders in the greater Reims area. There is also the challenge to involve the visiting schools and users of the Eco<sup>2</sup>-Campus in the coproduction of a shared permanent documentation locally visible to all and a diary of the project (blog and short news highlights on the websites, short video reportages).

Project 2 (participation to FEE Eco-Schools “Young reporters for the Environment” challenge):

Depending on the start involvement of first schools/classes, the ambition is to take part to the FEE Eco-Schools “Young reporters for the environment” challenge with a first test from September until December 2024.

**Schedule (Plan the start date, the first tests, the substantial completion dates...):**

Start date: from May 14 to June 28, 2024 exchanges with;

- Start of a voluntary group for communication with the village by the citizens association AGORA M112 (July-September 2024). Ambition is to develop a living communication on eco2-schools.eu website and the village of Courcy newsletter/facebook page.
- Preparation of 2 focus reportage test activities; 1st on outdoor natural environment-biodiversity, 2nd on document-explore the initial situation in T2 building (July-August 2024),
- First test implementation with 2 classes of Courcy basic school and Mont d’Hor Saint Thierry middle school (September-December 2024), with participation to “Young reporters for the Environment” yearly challenge.
- Project to augment the functionalities for cooperative documentation (in 2025).

**Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely):**

- Objective 1) Start of a voluntary group for communication “village of Courcy”,
- Objective 2) Test activity with 2 classes, 1<sup>st</sup> transmission of knowledge of the “Microforêt de Courcy” project between 6th and CM1-CM2 classes, 2<sup>nd</sup> document and explore T2 building (September-October 2024).
- Objective 3) Participation to “Young reporters for the Environment” yearly challenge, with a permanent reportage coproduced by classes 5th-6th, CM1-CM2 (September-December 2024).

**Indicators:**

- Number of posts, short news, video reportages + number and diversity of persons involved.
- Co-production of an evaluation grid using the 12 criteria of the European sustainability skills framework “Greencomp.eu”, the evaluation could take the form of recognition of prior learning (Open Badges).

**Relation with other targeted actions (short describe the interaction):**

- Action 1 “Educational third place for visiting school” (Climate Education, co-learning in action),
- Action 3 “Renewable energies-sobriety” (water heater and solar oven test animation),
- Action 4 “Worksite school, discovery of climate renovation professions” (apprenticeship, continuing training).

**Realistic project needs (accessible resources, time, persons, budget):**

- Human resources (volunteers), educational resources and test start-up budget are being defined.

**What are the project’s (expected) overall goals in energy needs decrease, smart use of the buildings and with renewables energy Self-consumption?**

## Goals related to energy needs decrease:

- Restart (retrofit adaptation) of the existing heat network in the building with using low temperature hot water. The approach for the T2 building is to maintain the existing radiators and improve the operation with low temperature direct solar energy (this will most probably use a replacement of the thermostatic valves with battery-free and wireless regulation).
- Equipment of a first room with led lighting tubes or plates (retrofit of the existing lightening installation). We are willing to test how we can best retrofit the existing equipment for avoiding unnecessary electronic waste (real circular carbon footprint, elaborate an optimized progressive replacement plan).

## Goals related to smart use of the buildings:

- Installation of contactless smart switches and sensors in the “project room” and 2 first classroom-workshops, that will make it possible to measure the energy consumptions (target is to measure, learn by exploration, reduce and challenge by codesign the smart low energy operation of the building with the community of users and professionals).
- Smart use of the on demand transport service of CU du Grand Reims (common bus transport shared by classes from multiple schools) ;
- Learn by exploration and test a smart way to reduce heat or cold by a good configuration of the spaces for learning depending on the seasons.
- Involve the community in small reparations so everyone can learn how the installation works, how it is operated and can be for best efficiency maintained (share in the “project room” a table of roles and tasks where persons from the whole group are committed by rotation);
- Start a documentary space with shared resources for learning-action (plans, technical instructions, building usage, educational materials, diary books for shared continue documentation, agenda of reservations).

## Goals related to renewables energy self-consumption:

- Test of a 100% solar energy boiler room (learning demonstrator temporary equipment)
- Test of light solar panels sunshades on the south exposed façade, with direct connection to the 220 volt electricity network (direct self-consumption, small batteries integrated in the panels).
- By December 2025, the goal is to make a first wide installation of solar renewable captors and storage equipments for heat/cold/electricity in self consumption on the T2 building (+ possibly a first test of small wind turbine and shared light electric vehicles charging plots powered by the Eco<sup>2</sup>-Campus renewable energy production).

**Additional Special Project Requirements Not Already Covered****Multi-party financing of the test phase and cooperative budget of the project:**

- **The activities and services offered will justify a symbolic participation of users** (e.g. daily price per action or per student). This price will be decided by the community of users, members of the Eco<sup>2</sup>-Campus.
- **These participations will be amplified by the cooperative budget of the Eco<sup>2</sup>-Campus association** (to finance, for example, educational materials, the gradual adaptation of places to shared educational project paths, obtaining cross-financing via calls for projects, sponsorship, subsidies). The idea is that this cooperative budget is not limited to a single site, but supports an educational project co-produced with a network of participating co-beneficiary schools.

- **The participation of institutional partners is important to have from the start a sufficiently well-equipped infrastructure and with at least one referent facilitator on site.** The support of private foundations seems possible (first test with an extension of existing partnerships e.g. “fondation MACIF Grand Est”).

> This is a main challenge for September (creation of the Eco<sup>2</sup>-Campus with a for nonprofit cooperative association, for start limited cooperative budget) and December 2024 (General Assembly, cooperative budget for 2025)!

\*For solving the cooperative budget and community shared involvement issue (living lab with common resources, open for the Greater Reims and crossborder region), **the core team is willing to take the opportunity to implement for the Eco<sup>2</sup>-Campus the [NEB CHAPTER Brussels “decentralized autonomous organization” website platform model](#)** (cf. Hypha Earth DAO <https://hypha.earth/hypha-labs/>).

## Communication and dissemination activities of the project


### Indicate the communication and dissemination activities of the project

Until this moment, the project was disseminated in several occasions:

- **Local communication on the Eco<sup>2</sup>-Campus project on Microville112 in Courcy (December 2023-June 2024):** this was done by the organization of 6 co-design workshops and in between communication by e-mails. The project-managers have also translated all key documents in French native language, for equal access to all Core team members and wider community involved in the project. Information is shared by e-mail, 3 internet sites and social medias (at this stage mainly on LinkedIn). A start Community event has been organized the 10 April 2024 with ~30 key representatives that have participated to the presentation of the 5 pilots sites Green action plans in presence in Courcy (videoconference projected on a wide screen). By September 2025 the President of CU du Grand Reims and Marne Department have agreed to be involved in a start the new academic year community event (objective is to celebrate the past year achievements, share the challenges and commit together in next steps actions, this will be also the moment for creation of the Eco<sup>2</sup>-Campus for nonprofit crossborder association).
- **This communication is also started in the Greater Reims area and crossborder region:** (Eurometropolis Lille-Kortrijk-Tournai “Métaplateau projet HABITER2030” in Lambersart, Brussels Region “Schools neighbourhood contracts”, Leuven “School 2030 forum”, “Fresque Renaissance écologique – Diagonale du Plein”, “Fresque des Proximités - Chaire ETI 15 minutes City”, “Campus Edurenov” Ecole du Breuil Paris, ...). Official recognition of Eco<sup>2</sup>-Schools as NEB-LAB project is in the final phase and a wide fruitful cooperation is ready to start, as soon the crossborder association will be active (by the autumn 2024).
- **Update communication to the “New European Bauhaus” and “Education for Climate” Community for connection with NEB-LAB Eco<sup>2</sup>-Schools initiative (December 2023-June 2024)** : the projet is shared in many occasions bridging key policies of the European Union (ex. Mission NetZeroCities, EUI-IA, EUROPAN17 Living cities#2) and community driven initiatives (ex. Lighthouse projects “Bauhaus of the Seas”, “network NEB Villages of the future”, “NEBORhoods”, NEB Prizes “Klimaatschoolplein”, “Roofscapes”, [NEB CHAPTER Brussels](#), ...). During the NEB FESTIVAL 9-13 April the Eco<sup>2</sup>-Campus was showcased on NEB-LAB Eco<sup>2</sup>-Schools stand (in the heart of the NEB FAIR), its forwardlooking approach was highlighted with 6 focus-conversations (bringing together online and in presence best initiatives and key experts in Europe).
- **Intention is to make a first test of learning-action activities with the basic school of Courcy and middle school of Saint-Thierry (September-December 2024):** The citizens association AGORA M112 is willing to involve the schools and the youth in a “continue reportage” (online journal, video podcasts) for taking part to FEE Eco-schools “Young reporters for the Environment” challenge.



## 4.3 Ciência Viva

	<b>Pavilhão do Conhecimento – Centro Ciência Viva</b>	<b>Lisbon, Portugal</b>
<b>Sector:</b> non-formal education		
<b>District buildings portfolio:</b> Science Centre building		
<b>Target groups:</b> Science centre visitors, administrative staff and stakeholders, school representatives, external collaborators from academic institutions and the Network of Ciência Viva Centres).		
Link: <a href="https://www.pavconhecimento.pt/">https://www.pavconhecimento.pt/</a>		
<b>Description of the vision of the pilot site project</b>		
<p>Ciência Viva, the Portuguese National Agency for Scientific and Technological Culture, was created in 1996 to promote public awareness of science and technology and science education at a national level, with a particular emphasis on young people. Starting up as a unit of the Ministry of Science and Technology, it is nowadays an association, which includes as its members, public bodies and research institutes. The Agency promotes and supports science education projects at schools, placements for secondary school students in research laboratories during the holidays, and summer science activities for the public. Since its creation, Ciência Viva has been developing activities along three different and complementary streams: science education (schools), public awareness of science (citizens) and a national network of science centres.</p>		
<p>The Pavilion of Knowledge in Lisbon is the largest science centre in Portugal. Since 1999 receives around 250,000 visitors per year. It is also the headquarters of Ciência Viva, coordinating a network of science centres across the country. Ciência Viva’s network of 22 science centres, in collaboration with universities and local authorities, acts as a platform that drives regional development in scientific, cultural and economic dimensions.</p>		
<b>Your ambition and targeted progress (anticipated schedule)</b>		
<b>Your ambition explained in a sentence:</b>		
<p>Empower citizens with the knowledge, skills, values and attitudes needed to contribute to environmental protection and to a more sustainable society.</p>		
<b>Targeted progress:</b>		
<ul style="list-style-type: none"> <li>- <b><u>By December 2024:</u></b> <ul style="list-style-type: none"> <li>- Full transition to LED lighting (internal and external lighting of the building);</li> <li>- Introduce automatic faucets (with sensors) in all bathrooms;</li> <li>- Introduce faucet flow restrictors;</li> <li>- Increase environmental awareness and literacy through activities for students and public;</li> <li>- Increase the number of formations and training for teachers in the environmental area;</li> <li>- Installation of electric hand dryers in the Pavilion of Knowledge bathrooms;</li> <li>- Reduce the production of plastic waste by eliminating the water bottle vending machine.</li> </ul> </li> <li>- <b><u>By December 2025:</u></b> <ul style="list-style-type: none"> <li>- Optimization of HVAC system to reduce thermal needs;</li> <li>- Installation of a photovoltaic solar system for self-consumption to reduce carbon dioxide emissions;</li> </ul> </li> </ul>		

- Replicate the Pavilion of Knowledge example in other Ciência Viva Centres in Portugal and in other science centres around Europe;
- Inform citizens about European initiatives, such as The European Green Deal and The New European Bauhaus;
- Encourage schools, local communities and stakeholders to work together for mobilizing resources to foster environmental actions and establish green action plans;
- Develop hands-on experiences/activities/actions that show the transformation of the Pavilion of knowledge into a sustainable building.

### Primary purpose and program (steps) of this project

#### Describe the concerned building(s), multifunctional uses and configuration(s):

The Pavilion of Knowledge consists of three floors that comprise a total floor area of 11300 m<sup>2</sup>:

- basement located below ground (floor -1): parking lot.
- ground floor (floor 0): reception, exhibitions rooms, technical rooms, cafeteria, warehouses, Ciência Viva classrooms and bathrooms.
- first floor (floor 1): library, laboratory, auditorium, bathrooms and exhibitions rooms.
- mezzanine (floor 1): open-space, offices and bathrooms.

#### What areas are concerned by the Climate renovation process?

The climate renovation process will affect the entire building.

#### What areas are concerned for implementation of the Climate Education learning-action?

Exhibition rooms, auditorium, library, Ciência Viva classrooms and laboratory.

### Who are the leading participants? (describe your “core team”, list the persons and their entities committed in the common success)

Core team: 6 persons involved on 31/10/2023 meeting

- Pilot site managers (Leader role, facilitate the process, guidance to success): Sofia Lucas, Andreia Penado and Rita Moreira;
- Communicate (Community engagement, open documentation, visibility and participation to all): Ciência Viva communication team;
- Learn (Teaching and learning, Climate education, learning-action process, skills recognition): Ciência Viva School, Ivone Fachada (Bragança Ciência Viva Centre), researchers of the Instituto Superior Técnico (University of Lisbon), teachers engaged in professional training sessions and students and general public that participated in related events;
- Operate (Facilities and operation, sobriety, better understanding, use and maintenance): Ciência Viva technical and maintenance team;
- Renovate (Step by step material improvement of the school infrastructure and buildings): Ciência Viva technical and maintenance team, executive board and the solar panels providing company;
- Decide and support (School governance, commitment, supportive means, cooperative decision): Ciência Viva executive board.

Have the “core team” members signed the charter of commitment?: **Yes**

Has the “core team” agreed on common values, rules, rituals?: **Yes**

Explain: The core team is composed by members with strong academic background, crossing research areas related to sustainability and biodiversity. They also are strongly committed with the values of the New European Bauhaus and currently develop research and work in related topics.

### **Describe your community (we focus on the real persons that are involved, not intentions)**

Community:

- 1) 48 teachers involved in the professional training session "A route to boost green action plans at school", in April 2024.

Age groups: 25-65 years (48 persons).

Inclusion (diversity): 17% M, 83% F.

- 2) 180 visitors participated in one activity in the celebration of the International Children's Day (1st June 2024), related to the work developed in the context of NEB|LAB ECO<sup>2</sup>-SCHOOLS:

Age groups:

- 3-17 years: 80 persons.
- 25-65 years 100 persons.

Inclusion (diversity): 51% M, 49% F.

Management committee (board of the school, decision makers): Ciência Viva Executive board.

### **Which first actions are active for implementation? (prepared by the "core team" and enriched with the "community" in common workshops).**

#### **ACTION 1**

#### **Name of the action: Celebration of the International Children's Day (1st June 2024)**

Leader: Sofia Lucas, Andreia Penado and Rita Moreira

Committed team: The following Departments of Ciência Viva: Education, Design and Image, Communication and Public Relations, Outreach, and Exhibition.

Short description of the implementation (expected): The Pavilion of Knowledge – Ciência Viva Science Centre joined the celebration of the International Children's Day (1st June), with a big variety of activities and events. This year goal was to demonstrate to visitors that science and art can be interconnected, showing artistic research and creation. One of the activities was related to the work developed in the context of NEB|LAB ECO<sup>2</sup>-SCHOOLS: children and young people prepared and carried home a small aromatic plant inside a biodegradable plant pot. This gave them inspiration to initiate a creative garden in their homes or schools. They also learnt about the importance and benefits of green infrastructures and vegetation in urban spaces.

Schedule: 1st of June 2024

Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely): The activity was prepared to reach 100 visitors during four sessions in one day (in this case, 1st June).

Indicators: In total 180 visitors participated in this activity, and visitors carried home 60 small aromatic plants inside a biodegradable plant pot.

Relation with other targeted actions (short describe the interaction): related with Action 2

Realistic project needs (accessible resources, time, persons, budget): Plants, biodegradable plant pots, compost, gardening tools and wood for small garden demonstrator; Pre-activity time – 10 hours and activity time- 5 hours; budget around 160 €.



## ACTION 2

### **Name of the action: “A route to boost green action plans at school” - Ciência Viva Professional Development Centre for teachers**

Leader: Andreia Penado e Rita Moreira

Committed team: Andreia Penado, Rita Moreira and Ciência Viva Professional Development Centre for teachers

Short description of the implementation (expected): The Ciência Viva Professional Development Centre is distinguished by its proximity to the scientific community and its dynamics of direct work with teachers. In the context of NEB|LAB ECO<sup>2</sup>-SCHOOLS, the community of teachers that visit the Pavilion of Knowledge – Ciência Viva Science Centre, was invited to participate in two sessions on the topic: “A route to boost green action plans at school”. Around 50 teachers learnt about the New European Bauhaus’s principles and received insights into transformative initiatives to foster the development of sustainable solutions in their schools, whereas the importance of community engagement was discussed throughout an overview of stakeholder management processes.

Schedule (Provide start date, first tests, substantial completion dates...): This short-term training session was replicated in two different groups/classes in order to include all the registered teachers. Each class duration was around 4 hours and occurred in 16, 17, 23 and 24th of April, between 18h00-20h00.

Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely): The main goal was to involve 30 teachers interested on this topic.

Indicators (how do we measure progress, ex. energy need decrease?): The high number of registrations in this short-term training session reinforce the need to create two classes to include nearly 50 teachers across the country (Portugal).

Relation with other targeted actions (short describe the interaction): related with Action 1.

Realistic project needs (accessible resources, time, persons, budget): Training session preparation time: 120 hours; two trainers per session to guarantee the dynamics of the training session (8 hours).

## ACTION 3

### **Name of the action: “Full transition to LED lighting”**

Leader: Paulo Gonçalves, responsible for the technical department

Committed team: Ciência Viva technical and maintenance department

Short description of the implementation (expected): LED lights are up to 90% more energy efficient than incandescent light bulbs. The energy efficiency and longer lifespan of LED technology holds the potential for changing the way educational buildings brighten their facilities by reducing the cost of electricity and overall energy use. The Pavilion of Knowledge – Ciência Viva Science Centre just become fully equipped with LED technology, by replacing external lighting. This measure secures a better indoor and outdoor lighting environment together with better environmental performances.

Schedule (Provide start date, first tests, substantial completion dates...): 1st semester of 2024



Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely): Optimize energy consumption and costs.

Indicators (how do we measure progress, ex. energy need decrease?): The progress will be measured in future energy bills, by comparing data from previous years with 2024.

Relation with other targeted actions (short describe the interaction): not applicable.

Realistic project needs (accessible resources, time, persons, budget): Budget of 2300€ for transition to outdoor LED lighting and 21400€ for transition to indoor LED lighting.

#### ACTION 4

##### **Name of the action: “Installation of more efficient water faucets”**

Leader: Paulo Gonçalves, responsible for the technical department

Committed team: Ciência Viva technical and maintenance department

Short description of the implementation (expected): Water is essential to life on Earth. Without water, no plant, animal or other species, including humans, could survive. Therefore, it is crucial to incorporate new technologies and solutions to save this precious natural resource. In the Pavilion of Knowledge – Ciência Viva Science Centre, 24 water efficient faucets (automatic taps with a flow regulators) were installed to reduce water consumption without compromising the hygiene of visitors and staff.

Schedule (Provide start date, first tests, substantial completion dates...): 1st semester of 2024

Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely): Optimize water consumption and costs.

Indicators (how do we measure progress, ex. energy need decrease?): The progress will be measured in the future water bills, by comparing data from previous years with 2024.

Relation with other targeted actions (short describe the interaction): not applicable.

Realistic project needs (accessible resources, time, persons, budget): Budget of 3700 € for automatic taps; budget of 130 € for flow regulators.

#### ACTION 5

##### **Name of the action: “Installation of electric hand dryers in all the bathrooms”**

Leader: Paulo Gonçalves, responsible for the technical department

Committed team: Ciência Viva technical and maintenance department

Short description of the implementation (expected): A hand dryer typically uses a low level of electrical power and can last for a decade. Furthermore, with this modern equipment there is no used of paper. In the Pavilion of Knowledge – Ciência Viva Science Centre, 5 hand dryers were installed in all bathrooms (energy efficient).

Schedule (Provide start date, first tests, substantial completion dates...): 1st semester of 2024

Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely): Reduce the use and costs in paper supplies.

Indicators (how do we measure progress, ex. energy need decrease?): The installation of electric hand dryers represents a potential paper saving of approximately 500 kg/year.

Relation with other targeted actions (short describe the interaction): not applicable.

Realistic project needs (accessible resources, time, persons, budget): Budget of 2850€ for 5 hand dryers.

#### ACTION 6

##### **Name of the action: “Removal of the water bottle vending machine in the exhibition area”**

Leader: Paulo Gonçalves, responsible for the technical department

Committed team: Ciência Viva technical and maintenance department and Exhibition team

Short description of the implementation (expected): The production of plastic waste can be reduced by removing the plastic water bottle vending machine in the exhibition area.

Schedule (Provide start date, first tests, substantial completion dates...): 1st semester of 2024

Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely): Reduce the plastic consumption and production.

Indicators (how do we measure progress, ex. energy need decrease?): By eliminating the water bottle vending machine, we avoid using around 70 kg of plastic/year.

Relation with other targeted actions (short describe the interaction): not applicable.

Realistic project needs (accessible resources, time, persons, budget): not applicable.

#### ACTION 7

##### **Name of the action: “Mobility, well-being and sustainability of human resources”**

Leader: Paulo Gonçalves, responsible for the technical department and Ciência Viva Executive Board

Committed team: Ciência Viva staff

Short description of the implementation (expected): The continuous awareness of more sustainable practices related to everyday commuting to work led to the installation of one charging station for electric cars in the garage for employees use. In addition, the promotion of flexible schedules, favoring the use of public transport during non-peak hours and the existence of rental bicycles available for commuting near the Pavilion of Knowledge – Ciência Viva Science Centre contribute to lower the carbon footprint. Whenever possible and appropriate, the promotion of virtual meetings as an alternative to physical meetings that involve additional travel are also implemented.

Schedule (Provide start date, first tests, substantial completion dates...): 1st semester of 2024

Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely): Reduce the carbon footprint of the employees commuting to work.

Indicators (how do we measure progress, ex. energy need decrease?): Determine the overall number of cars that use the parking lot, the number of bicycles/electrical scooters and electric cars present in the parking lot, and the number of electric cars that use the charging station.

Relation with other targeted actions (short describe the interaction): not applicable.

Realistic project needs (accessible resources, time, persons, budget): Budget of 1620€ for the charging station electrical components and 1000€ for electrical vehicle charger.

**What are the project's (expected) overall goals in energy needs decrease, smart use of the buildings and with renewables energy Self-consumption?**

Goals related to energy needs decrease:

- The full transition to LED lighting in the building was completed by replacing the external lighting. This measure and improvement will save about 0.5% of the building's primary energy and the return on investment is expected up to 6 years.

Goals related to smart use of the buildings:

- Promote remote working;
- Reconcile cleaning schedules with schedules for lighting the Pavilion of Knowledge, avoiding periods of unnecessary lighting;
- Introduce a purchasing policy that opts for more ecological equipment, namely with sustainability certification;
- Introduce motion or presence sensors where is possible and reassess the timing of current motion sensors.

Goals related to renewables energy self-consumption:

- The installation of a photovoltaic solar system for self-consumption consists of 164 panels, with a total photovoltaic generator power of 61.5 kWp. This measure and improvement will save about 10% of the building's primary energy and the return on investment is expected up to 10 years.

**Additional Special Project Requirements Not Already Covered**

not applicable.

**References to the green action plan and the dedicated Miro online whiteboard (schematic representation of the current process)**

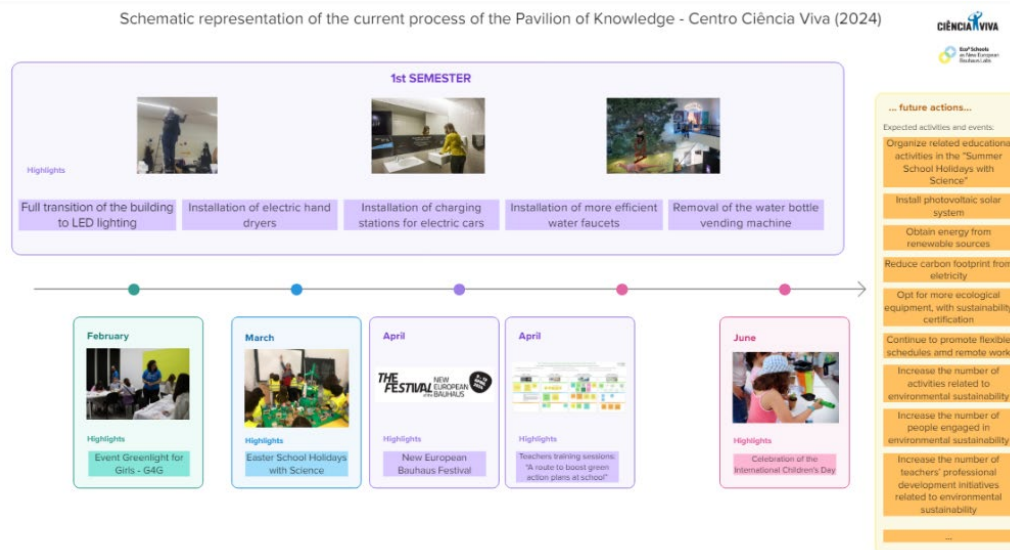


Figure 10 - Schematic representation of the implementation process in Ciencia Viva

## Communication and dissemination activities of the project

### Indicate the communication and dissemination activities of the project

Until this moment, the project was disseminated on several occasions:

- Greenlight for Girls - G4G (February 2024)

Greenlight for girls promotes, with the support of Ciência Viva and Microsoft, an initiative that brings together 200 girls of different ages and locations across the country at the Pavilion of Knowledge for various scientific workshops. These practical moments focus on different areas, from robotics, through mathematics, to video games. The program featured a wide range of experimental workshops with lectures on important topics, including renewable energy where girls built small solar vehicles. Participants had the opportunity to exchange knowledge with mentors from various STEM areas (Science, Technology, Engineering and Mathematics) and thus be inspired for a possible future scientific career.

- Easter Holidays with Science at the Pavilion of Knowledge – Centro Ciência Viva (March 2024)

During the school holidays, children between 6 and 12 years were invited to discover the world around them through experiments, practical activities, games, and visits to exhibitions. In this Easter edition, these scientists constructed a village where photovoltaic panels captured the sun's rays and the waste was transformed into energy. This energy turned on the light streets with efficient LED light and heated houses with clean energy.

- The Festival of the New European Bauhaus (April 2024)

Ciência Viva participated in the New European Bauhaus Festival 2024 in Brussels, where thousands of participants connected - on site and virtual - with exhibitors, demonstrations and workshops. Through an interactive presentation, the 5 pilot sites, including the Pavilion of Knowledge in Lisbon, introduced NEB-LAB Eco<sup>2</sup>-Schools where they presented their renovation Green action plans and building renovation projects towards a Climate Neutrality of the Educational sites.

- "A route to boost green action plans at school" - Ciência Viva Professional Development Centre for teachers (April 2024)

This online training session constituted a starting point for the development of green action plans in schools through the contribution of students and teachers, integrating the fundamental principles of the European project ECO<sup>2</sup>-SCHOOLS as New European Bauhaus (NEB) Labs. Particularly in schools, measures can be implemented to optimize energy resources as well as promoting activities to raise awareness of environmental sustainability, allowing savings in energy consumption and reducing the carbon footprint. To do this, teachers identified the initial state of the art of their school and determine what could be changed to promote a green transition and create an intervention plan in co-creation with community partners.

- International Children's Day (1st June 2024)

The Pavilion of Knowledge – Ciência Viva Science Centre joined the celebration of the International Children's Day (1st June), with a big variety of activities and events. This year goal was to demonstrate to visitors that science and art can be interconnected, showing artistic research and creation. One of the activities was related to the work developed in the context of NEB|LAB ECO<sup>2</sup>-SCHOOLS: children and young people prepared and carried home a small aromatic plant inside a biodegradable plant pot! This gave them inspiration to initiate a creative garden in their homes or schools. They also learnt about the importance and benefits of green infrastructures and vegetation in urban spaces.



## 4.4 University College Cork

	<b>UCC North Mall Campus</b>	<b>Cork, Co. Cork, Ireland</b>
<i>Sector:</i> Tertiary Education and Research		
<i>District buildings portfolio:</i> University building comprising teaching, laboratory and canteen area		
<i>Target groups:</i> Staff and students, Other public sector bodies and Cork City Council, Local community (i.e. school visitors)		
<p>Link:  <a href="https://www.ucc.ie/en/build/projects/current/deepretrofitoftheenterprisecentrenorthmallcampus/">https://www.ucc.ie/en/build/projects/current/deepretrofitoftheenterprisecentrenorthmallcampus/</a></p>		
<b>Description of the vision of the pilot site project</b>		
<p><b>Vision</b> (per D2.2 Green Action Plan and KPIs):</p>		
<p><i>“To be an exemplar community of practice in material sustainability impact, within the UCC ecosystem. Driving the agenda towards net zero through world leading research at the BEES and Applied Psychology Schools, demonstration of best practice at the Pilot Site, and education of current and future leaders and decision makers.”</i></p>		
<p><b>Short description of the pilot site:</b></p>		
<p><i>The Enterprise Centre is a building situated on UCC’s North Mall Campus. It hosts both the UCC School of Applied Psychology and UCC School of Biological, Earth and Environmental Sciences (BEES). The building comprises lecture theatres, classrooms, canteen/restaurant, and offices of academic and administrative staff.</i></p>		
<p>The vision outlined in D2.2 is derived from UCC’s university level <i>Sustainability and Climate Action Plan (2023-2028)</i> and <i>Strategic Plan (2023-2028)</i>. D2.2 also established four goals:</p>		
<ol style="list-style-type: none"> <li>1) <i>Achieve a 50% reduction in GHG emissions (scope 1 and 2) at the pilot site following the deep retrofit project.</i></li> <li>2) <i>Enhanced awareness of staff, students and the surrounding community of sustainability and pro-environmental behaviour. Actioning the delivery of Sustainability Citizenship as a core ethos of UCC.</i></li> <li>3) <i>Greater awareness of the biodiversity and green-blue spaces adjacent to the pilot site.</i></li> <li>4) <i>Develop a limited scale proof of concept at or near the pilot site incorporating circularity of materials and low impact on the existing green space and conduct the other NEB-LAB test activities.</i></li> </ol>		
<p>Goals 2, 3 and 4 each inform the four proposed test activities in UCC’s Localised Implementation Plan. Each sharing at least one of the Eco<sup>2</sup>Schools experimental bylines; observe, communicate and proof of concept.</p>		
<p>Regarding goal 1, the second phase of the deep retrofit has commenced at the time of drafting D4.1. This goal is proceeding irrespective of the Eco<sup>2</sup>Schools project and therefore isn’t being reflected in this Localised Implementation Plan in the interim. Forthcoming expected engagement with fellow higher and further education institutions and public sector bodies will be elaborated and updated upon over the remainder of the Eco<sup>2</sup>Schools project.</p>		
<b>Your ambition and targeted progress (anticipated schedule)</b>		
<p><i>By the end of 2025 pre-, post- and retention tests will have been conducted for each of UCC’s proposed test activities, within the remit of Eco<sup>2</sup>Schools, informing future monitoring sustainability citizenship at UCC.</i></p>		
<p>Targeted progress:</p>		

- By Sept. 2024:
  - o Phase Two of the Deep Retrofit will be completed by start of term in September 2024.
- By Dec.2024:
  - o The test activity regarding the north campus green tour’s pedagogy will have been conducted with multiple samples.
  - o The test activity regarding monitoring indoor air quality will have commenced.
- By February 2025:
  - o The outdoor proof of concept test activity will have commenced by Spring 2025.
  - o The observation of commuting habits at the pilot site will commenced by start of semester January 2025.
- By Dec.2025:
  - o The energy management statistics of the newly retrofitted Enterprise Centre will have been collected for a full calendar year, allowing assessment of achieving its stated energy efficiency and GHG emission goals.

### Primary purpose and program (steps) of this project

Describe the concerned building(s), multifunctional uses and configuration(s):

- The Enterprise Centre is the focus of UCC’s pilot site. A building undergoing a deep retrofit funded by a national pathfinder programme for the Irish higher education sector.
- The building comprises lecture theatres, classrooms, small labs, canteen/restaurant, and offices of academic and administrative staff.

What areas are concerned by the Climate renovation process?

- The Enterprise Centre is the only building at the pilot site being renovated in the duration of the Eco<sup>2</sup>Schools project.
- Future plans for both renovations of the existing built footprint (e.g. proposed renovation of the Cooperage building) and new developments (e.g. planned Tyndall National Institute extension) will be informed by the outcomes and learnings of Eco<sup>2</sup>Schools.

What areas are concerned for implementation of the Climate Education learning-action?

- 3 of the 4 proposed interventions are to be conducted in external spaces adjacent to the pilot site on the North Mall Campus (knotweed site, roads and paths to campus, North Mall Campus green spaces).
- 1 test activity concerns the overall indoor air quality monitoring of the Enterprise Centre.

### Who are the leading participants? (describe your “core team”, list the persons and their entities committed in the common success)

Core team: 8 persons involved as of 18/06/2024

- Pilot site managers (Leader role, facilitate the process, guidance to success): Daniel Carr, Maria Kirrane
- Communicate (Community engagement, open documentation, visibility and participation to all): Daniel Carr
- Learn (Teaching and learning, Climate education, learning-action process, skills recognition): Dr Annalisa Setti, Maria Kirrane



- Operate (Facilities and operation, sobriety, better understanding, use and maintenance): Pat Mehigan
- Renovate (Step by step material improvement of the school infrastructure and buildings): Pat Mehigan
- Decide and support (School governance, commitment, supportive means, cooperative decision): Dr Astrid Wingler, Dr Chris McCusker, Ruth Nally, Maria Kirrane

Have the “core team” members signed the charter of commitment?: **partly**

Has the “core team” agreed on common values, rules, rituals?: **Y**

**Explain:**

The core team gathered to deliver on Eco2Schools are involved as a consequence of the university’s high level commitment to be a net zero campus by 2040 and a demonstrator of best practice for sustainability (as stated in UCC’s Sustainability and Climate Action, 2023-2028). That vision and mission form the agreed common values for the Core Team.

The lead Core Team members, from the Office of Sustainability and Climate Action, are signatories of the charter of commitment. This is a reflection of some differing and occasionally conflicting priorities between team members. However, the team are all agreed to fairly contribute time despite existing resource constraints.

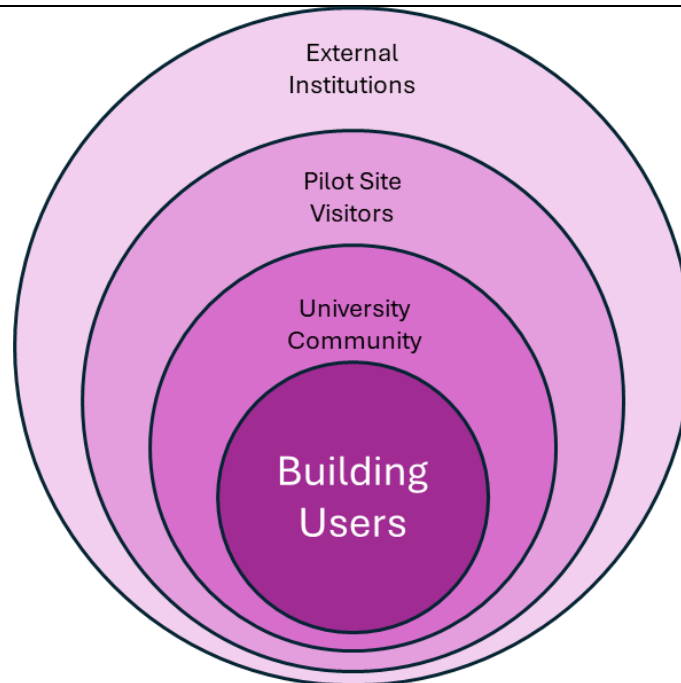
**Describe your community (we focus on the real persons that are involved, not intentions)**

There are several layers of the community involved in the fulfillment of this Localised Implementation Plan. As illustrated in the below diagram. All actions involve building users at the very minimum. Most incorporate the university community as a whole.

It is difficult to plan actions for site visitors due to resource and research ethics constraints. However, we can work to engage pilot site visitors by ensuring the campus is as open as possible and disseminating results with interested parties (e.g. other green schools).

External institutions such as the local authority, OPW (Office of Public Works), SEAI (Sustainable Energy Authority of Ireland) and HEA (Higher Education Authority) have considerable interest in the deep retrofit due to it being funded via a pathfinder programme. They will be engaged with the renovation’s progress irrespective of Eco<sup>2</sup>Schools, therefore they have been included in this description of the community.





**Figure 11**– *Diagram of the UCC Pilot Site Community*

**Describe your community in a few words (stakeholders, entities, persons involved):**

The first level of the community comprises the building users. This includes all staff, researchers and students from the two UCC schools present at the pilot site. The precise numbers of the population are not currently available but approximates to c. 600 people. The average age of students that completed the baseline project survey (WP5) was 19 years old. Staff ranged from X – Y years old

At a university-wide view, UCC has over 24,000 students (17,206 undergraduate and 7,180 postgraduate) and 3500 staff (academic, research and administrative). Many may avail of facilities near the pilot site such as the long running park and ride service during term time. Two student societies are of particular interest to the pilot site: the BEES and Psychology Socs.

The pilot site visitors include workers at the Mercy Hospital, guest lecturers and active travel commuters. It is currently not possible to retrieve precise numbers of this cohort but the Mercy Hospital is a stakeholder of interest for the site. As a fellow significant energy user (SEU), the hospital has an interest in also becoming a more sustainable organization and acting as pro-environmental influencer to its community. Some actions can be adapted to inform a specific programme of engagement with this stakeholder group.

Other external institutions include the SEAI and OPW as stated before. As the deep retrofit is a project of national interest to higher education and the public sector more generally, they are being kept informed of the renovation’s progress.

Management committee (board of the school, decision makers):

- Local decision makers – Dr Astrid Wingler (School of BEES), Dr Chris McCusker (School of Applied Psychology)
- University Leadership Team – a committee of all senior level department heads at the university, including the university president.

**Which first actions are active for implementation? (prepared by the “core team” and enriched with the “community” in common workshops).**

**ACTION 1**

**Name of the action: Measuring Pedagogical Impact of North Mall Green Biodiversity Trail (Learn)**

Leader: Irene Ní Shuilleabháin

Committed team: Daniel Carr

Short description of the implementation (expected):

- The team will outline green items of interest on the North Mall Campus, informed by currently identified knowledge items (WP5), during late Summer/early Autumn 2024.
- Concurrently, the knowledge items (co-developed with University of Bayreuth) will be submitted for internal ethical approval at UCC to measure the pedagogy of this action.
- By end October 2024, we anticipate to conduct this action with the community.
- Participants will register for the guided trail and will receive the survey to do as a ‘pre-test’. Once the tour has been completed, participants will receive the ‘post-test’ survey. A week after the tour, participants will receive the ‘retention-test’ survey.
- We anticipate to repeat this action multiple times until year end 2025, to receive as big a sample size as possible.

First “test activities” and Schedule:

- Subject to resourcing and scheduling, the first measurable results from the test activity will be collected and securely stored by mid-November.
- This action will be substantially completed by end-May 2025. However, this allows for further testing if a larger sample size is desired.

Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely):

1.1 Trail outline completed by September 2024.

1.2 Knowledge Items finalized by September 2024.

1.3 Conduct this action with multiple groups (i.e. samples) from the community up to year end 2025.

Indicators (how do we measure progress, ex. energy need decrease?):

1.1.1 No. meetings between Daniel and Irene RE: UCC Action 1

1.1.2 Trail outline approved by Buildings & Estates and President’s Office.

1.2.1 Survey knowledge items drafted and adapted concurrent to trail outline.

1.3.1 No. guided tours of the new North Mall biodiversity trail to year end 2025.

1.3.2 Total sample size of action 1 participants per community level (building user, university level, external visitors).

1.3.3 Response rate of action 1 pre-, post- and retention tests.

1.3.4 Overall knowledge retention of action 1 participants.

Relation with other targeted actions (short describe the interaction):

- Beyond D4.1 and Eco2Schools, this action succeeds the development of an interactive biodiversity trail situated UCC's main campus. Its success has prompted the development of sibling biodiversity trails across UCC's satellite campuses, starting with the North Mall Campus.

Realistic project needs (accessible resources, time, persons, budget):

- Persons: Up to two individuals needed to reasonably conduct activity. Additional assistance from other personnel, interns or students may be deployed as needed.
- Time: Up to two weeks working time (e.g. 8 hours per day) from Irene and Daniel collectively to determine the tour's content.
- Budget: n/a

## ACTION 2

**Name of the action: Monitor indoor air quality at the pilot site. Survey building users and disseminate air quality data at pilot site (Observe, Communicate).**

Leader: Pat Mehigan, Daniel Carr

Committed team: Maria Kirrane, Tim Cronin, Oliver Cunningham

Short description of the implementation (expected):

An indoor air quality monitoring system has been installed as part of the Enterprise Centre deep retrofit. This will allow for measured monitoring of pollutants inside the building such as PM2.5.

This action will entail; (1) dissemination of this air quality information with the community in an understandable way, (2) survey the community on relevant knowledge items and (3) alignment with ongoing initiatives in the research community (BE-HAV-I-AIR project) and the municipality (Clean Air Cork City, Cork Healthy Cities, Cork Learning Cities).

First "test activities" and Schedule:

- Subject to resourcing and scheduling, the first communications of indoor air quality will begin to be disseminated by Spring 2025.
- Subject to resourcing and scheduling, the knowledge item surveys will be deployed concurrent to the start of the communication intervention.
- Further dissemination with the wider community (site visitors and external institutions)
- This action will be substantially completed by Autumn 2025.

Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely):

2.1 Establish the best means of disseminating the indoor air quality with the different community layers.

2.2 Knowledge items finalised by October 2024.

2.3 Establish a baseline of community's understanding of behaviours/actions they can implement in their own homes to improve air quality. And track any possible behavioural change.

2.4 Engage with other projects/initiatives of interest regarding air quality and health up to end 2025.

Indicators (how do we measure progress, ex. energy need decrease?):

2.1.1 No. meetings between UCC Buildings & Estates and OSCA RE: indoor air quality data.

2.1.2 Determination of best medium to communicate the data with the different community layers.

2.2.1 Survey knowledge items drafted and adapted concurrent to progress on communications.

2.3.1 No. responses to action 2's knowledge items survey.

2.4.1 No. joint events with similar projects in Cork City

Relation with other targeted actions (short describe the interaction):

- Measuring pedagogical outcomes with analogous methods using knowledge items (all four actions).
- alignment with ongoing initiatives in the wider municipality ([Clean Air Cork City](#), [Cork Healthy Cities](#), [Cork Learning Cities](#)).

Realistic project needs (accessible resources, time, persons, budget):

- Resources – Buildings & Estates team and OSCA team, air quality monitoring equipment in place
- Time – At least 3 weeks of work time (7.5 hrs a day) to determine means of communicating air quality data and finalise knowledge items.

### ACTION 3

**Name of the action: Observe commuter behaviour on paths and roads to campus (Observe, Communicate).**

Leader: Daniel Carr

Committed team: Sean Lotty, Stefan Koch

Short description of the implementation (expected):

In partnership with Cork Smart Gateway, measurement devices will be deployed on adjacent streets to the pilot site. These devices monitor the number of people travelling by different modes of transport.

This action will help generate knowledge about how the community accesses the pilot site. And help inform and facilitate future behavioural change interventions. The results will be communicated with the local community (building users) and the wider university community via established for a (Green Forum, ULT Subcommittee on Sustainability).

First “test activities” and Schedule:

- Subject to resourcing and scheduling, the monitoring devices will be deployed during Autumn 2024.
- The first datasets are anticipated to be available by the end of the Autumn semester (December 2024).
- Communications with the local community (building users) will be ongoing throughout the test activity (up to year end 2025).
- Dissemination and knowledge transfer with the wider university community will accelerate from February 2025 onwards. Using existing for a such as the Green Forum.

Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely):

3.1 Install monitoring devices on adjacent roads by October 2024.

3.2 Compile the data from the devices and interpret what it illustrates by February 2025.

3.3 Communicate and disseminate action 3's findings with the layer of the community up to end year 2025.

Indicators (how do we measure progress, ex. energy need decrease?):

3.1.1 Approval from Buildings & Estates to install the monitoring devices received by September 2024.

3.1.2 No. devices installed by October 2024.

3.2.1 Data retrieved and securely stored by early Spring 2025.

3.3.1 No. social media post arising from action 3 up to year end 2025.

3.3.2 No. presentation(s) to UCC Green Forum and other for a.

Relation with other targeted actions (short describe the interaction):

- Similar intent with action 2 and 4 by communicating data/findings with the layers of the community.
  - Discussions can be facilitated to make linkages between air quality and modes of transport.
- Connects to a [similar initiative](#) underway by Cork Smart Gateway to monitor traffic/modes of transport in the Victorian Quarter of Cork City.

Realistic project needs (accessible resources, time, persons, budget):

- Resources: partnering with Cork Smart Gateway.
- Time: 4 weeks work time in total across OSCA and Cork Smart Gateway to prepare, install, retrieve data and disseminate findings.
- Persons: At least one individual from both Cork Smart Gateway and OSCA.
- Budget: n/a. Sensors being provided on a pro bono basis.

#### ACTION 4

**Name of the action: Pro-biodiversity intervention at a remediated site previously infested with Japanese Knotweed (of concept).**

Leader: Maria Kirrane, Daniel Carr

Committed team: Irene Ní Shuilleabháin, Eoin Lettice, Annalessi Setti, Tim Cronin

Short description of the implementation (expected):

The most ambitious action of UCC's localised implementation plan is a pro-biodiversity intervention at a remediated site adjacent to the pilot site. UCC Buildings & Estates has approved the use of the site for a non-permanent intervention (the site is slated for future development).

The intervention is open to all ideas from the university community. Any 'physical' structure will need to be sensitive to the surrounding environs and biodiversity, especially pollinators. This action will help generate learning

innovations on public/green spaces throughout the university. It may also form part of the assessment of some of our undergraduate students from a variety of fields (BEES, Psychology, Architecture, Health Sciences) subject to their interest.

First “test activities” and schedule:

- Communication and reportage with key stakeholders to identify the best course of action to proceed with creating a low impact, temporary and sustainable proof of concept (to be established by September 2024).
- Moving from a co-created low impact vision to learning by doing in constructing the intervention (physical work commenced by mid Spring 2025).

Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely):

4.1 Establish a working community co-creating a vision for the low impact proof of concept by Autumn 2024.

4.2 Work started on physically progressing the intervention on the ground during spring 2025.

Indicators (how do we measure progress, ex. energy need decrease?):

4.1.1 No. individuals involved in the working community.

4.1.2 No. co-creation workshops done by the working community.

4.2.1 Time taken to move from a co-created vision to breaking ground.

4.2.2 No. individual and departments contributing to the physical building of the intervention.

Relation with other targeted actions (short describe the interaction):

- Related and linked to the other actions of D4.1 in terms of communications and reportage. How to bring the community together to co-create.

Realistic project needs (accessible resources, time, persons, budget):

Resources: OSCA, UCC Buildings and Estates, Teaching colleagues

Time: 2 weeks of work time to establish path forward.

Persons: 1 person each from Buildings & Estates and OSCA and another partner (e.g. interested lecturer).

Budget: n/a

### **What are the project’s (expected) overall goals in energy needs decrease, smart use of the buildings and with renewables energy self-consumption?**

Goals related to energy needs decrease:

- 50% reduction in scope 1 and 2 GHG emissions after the deep retrofit of the Enterprise Centre.

Goals related to smart use of the buildings:

- Smart measures concerning internal temperature and indoor air quality are being progressed. Indoor air quality is included as a topic of one of the test activities.

Goals related to renewables energy self-consumption:

- There are no current plans to install on-site renewables during the lifetime of Eco<sup>2</sup>Schools.
  - Solar PV was considered at design stage of the deep retrofit but ultimately omitted due to the rising cost of materials needed to reinforce the building’s roof in order to carry solar panels.

- Exploratory boreholes for geothermal energy, to power ground source heat pumps, were dug at the pilot site but none were deemed viable. As a result air source heat pumps are being progressed as an alternative.

*\* These goals need to be realistic; they offer a capacity to improve with next steps of the implementation plan, without losing the final target which is Climate Neutrality of the Educational site (School, Campus, Museum, Educational Third Place) as a whole.*

#### Additional Special Project Requirements Not Already Covered

Indicate any special considerations and project requirements (i.e. pedagogical methodologies used):

- Pedagogical monitoring informed by the ongoing evolution of WP5 and co-creation with colleagues in the University of Bayreuth.
- Resource constraints may persist as a consequence of UCC's current budget deficit. This has been mitigated to a significant extent as the deep retrofit phase 2 is proceeding during summer 2024.

#### References to the green action plan and the dedicated Miro online whiteboard (schematic representation of the current process)


- Consistent with the vision, goals and actions established in D2.2.
- Stakeholders analogous to ones identified on Miro board. D4.1 also includes other previously unknown stakeholders of relevance such as Cork Smart Gateway.

#### Communication and dissemination activities of the project

Indicate the communication and dissemination activities of the project:

- UCC's takeover weeks of the Eco<sup>2</sup>Schools social media accounts. Including co-posts on Instagram to help facilitate wider audience reach.
- Informing the university-wide community via the existing sustainability governance structures (e.g. Green Campus Committee, Green Forum, University Leadership Team).
- Cork Learning Cities Festival April 2025
- Culture Night 2024 – a national initiative during October with local events in every Irish county. UCC Green Campus will host an event

### 4.5 Sigtunaskolan Humanistiska Läroverket

	<b>SSHL School Campus</b>	<b>Sigtuna, Sweden</b>
	<i>Sector:</i> Secondary Education	
	<i>District buildings portfolio:</i> School building	
	<i>Target groups:</i> Building owner and users (students, administrative & teaching staff), municipality	
	Link: <a href="https://sshl.se">https://sshl.se</a>	

#### Description of the vision of the pilot site project

Sigtunaskolan Humanistiska Läroverket, commonly known as SSSL, is a distinguished boarding school nestled in the historic municipality of Sigtuna, Sweden's oldest town. Established in 1980, SSSL was born from the merger of two illustrious Swedish boarding schools with rich histories: Sigtunastiftelsens Humanistiska Läroverk, founded in 1925, and Sigtunaskolan, founded in 1927. Over the years, SSSL has emerged as a leading institution for boarding education in Sweden. As SSSL approaches its centenary milestone, we stand at the threshold of a new era. Our school has produced a roster of distinguished alumni, including Prime Minister Olaf Palme, the reigning King of Sweden, Carl XVI Gustaf, prominent members of the Wallenberg family, Nobel Peace Prize laureate Hans Levander, accomplished scientists, prolific writers, and many others.

As we embark on our journey towards our 100th anniversary, SSSL is committed to leading the way in addressing contemporary challenges that have surfaced in recent years. Issues such as reverence for the natural environment, prudent energy and resource management, and responsible recycling have become imperative elements in resolving pressing environmental concerns that resonate with the global community. Our school is dedicated to championing sustainability and, within this framework, strives to evolve into a zero-energy consumption complex. We aim to not only inspire similar actions but also engage and educate the local Sigtuna community, where SSSL stands as a prominent landmark. With heritage buildings overlooking Lake Mälaren, SSSL seeks to integrate participative sustainable renovation initiatives that transcend the boundaries of traditional education. At the intersection of two smaller towns undergoing urban expansion, our integrated approach is centered on adopting the NEB-LAB concept.

Our vision for making the school more energy-efficient with several separate interventions proposed, is focused on:

Achieving high energy performance and energy savings

Use of innovative and sustainable energy solutions for improved indoor environmental quality for the users

Optimal dynamic matching between on-site renewable energy generation and building/ neighborhood consumption

Creation of innovation clusters that will apply new technologies and methodologies that can be used as references in future similar projects

This green action plan outlines our comprehensive strategy to transform SSSL into a sustainable, environmentally conscious institution, setting an example for future generations and fostering a greener, more sustainable world.

#### Your ambition and targeted progress (anticipated schedule)

Our ambition is to monitor and evaluate the energy consumption of classrooms equipped with a smart lighting system compared to reference classrooms, using the data for educational purposes and to develop a roadmap for similar interventions.

Targeted progress:

#### By Dec. 2024:

- Complete one year of monitoring and data logging of the smart lighting system in selected classrooms.
- Analyze and compare the energy consumption data between the classrooms with the smart lighting system and reference classrooms.
- Integrate the collected data into physics, environmental education, mathematics, and economics lessons.

- Enable students to use the data for case studies and assignments.
- Organize educational activities and projects based on the data and findings.
- Plan and conduct events, including open house events, in collaboration with the local community and student organizations.

**By Dec. 2025:**

- Continue monitoring and data logging of the smart lighting system for a second year to ensure reliability and consistency in the findings.
- Provide a clear, comprehensive analysis of the efficiency of the smart lighting intervention.
- Develop and publish a roadmap for similar energy efficiency interventions in other school buildings.
- Continue integrating the project into the curriculum, enhancing lesson plans and student assignments with ongoing data.
- Conduct further events and initiatives to disseminate findings and engage the local community and stakeholders, organized by student organizations and school staff.

**Primary purpose and program (steps) of this project**

Describe the concerned building(s), multifunctional uses and configuration(s):

The concerned buildings are educational facilities participating in the EU project NebLab Eco<sup>2</sup>schools. These buildings are being retrofitted to enhance energy efficiency and sustainability, aligned with the New European Bauhaus priorities. The buildings serve multifunctional uses including classrooms, workshops, offices, restrooms, dormitories/boarding houses, lab facilities, conference and expo rooms, external spaces, The specific building we did the interventions is that main school building (Instaan).

What areas are concerned by the Climate renovation process?

For the moment the areas concerned by the Climate renovation process include the school Building Instan (classrooms, corridors, and offices). The plan is to expand the renovation to Dormitories/Boarding houses (step 2), and to the whole campus.

These renovations aim to increase energy efficiency, transition to energy-positive buildings, and support renewable energy technologies. Additionally, we are specifically focusing on changing the lighting system in selected classrooms to evaluate its energy efficiency and potential for broader implementation.

What areas are concerned for implementation of the Climate Education learning-action?

As part of the project, the lighting system in some classrooms is being changed to assess energy efficiency. This initiative allows students to use daily online data and a database for school homework and projects. Teachers, especially in math and science, have real-world examples to enhance their environment and sustainability lessons. Our partner for this action is Signify, who provides devices and consultancy.

**Who are the leading participants? (describe your “core team”, list the persons and their entities Who are the leading participants? (describe your “core team”, list the persons and their entities committed in the common success)**

Core team: 15 persons involved

Stakeholders:

Facilities Team:

- Supervise the Installation and provides the data collected

Learn Team:



- Collaborates in analyzing the educational impact of the new lighting system.
- Integrates the installation of the smart lighting system into the school curriculum and uses it as an opportunity to talk about sustainable development.
- Uses the collected data as a data base for assignments, homeworks etc.

Communicate Team:

- Share the results and benefits of the intervention with the school and local community through physical and digital channels.

School Management:

- Receives and reviews the findings, making informed decisions based on the analysis.

Smart Lighting System Team:

- Provides technical insights and support for the energy consumption analysis.

Have the “core team” members signed the charter of commitment? **partly**

Has the “core team” agreed on common values, rules, rituals? **Yes**

**Describe your community (we focus on the real persons that are involved, not intentions)**

Community: x persons involved on 30/06/2024

Age groups:

- 15-18 years: 35 persons (Year 9 and 10 students and members of the Design and Technology Group (DTG))
- 25-65 years: 15 persons (The school management, teachers, the facility group, Signify’s members)
- +65 years: Insufficient number of persons since we talked about the local community that informed about the benefits of the project through several events and other communication channels

Inclusion (diversity): 43% M, 57% F, xx% others, 8% Disabled,

The community involved in the smart lighting system project is diverse and includes various stakeholders who contribute to the success and sustainability of the initiative. Here is a detailed description of each group within the community:

**Students:**

- **Participants:** The students in our school, from various grades and age groups, especially those in the DTG (Design and Technology Group).
- **Role:** Actively engaged in learning about energy efficiency and sustainability through hands-on projects and data analysis related to the smart lighting system. They participated in the investigation and selection process of the best lighting system. Additionally, they are involved in communication and dissemination activities, using digital platforms to share progress and findings.

**Teachers:**

- **Participants:** Teaching staff, particularly those in the science, math, and environmental education departments.
- **Role:** Integrate the project into their curriculum, using real-time data for lessons and student projects. They provide guidance and support to students, fostering a deeper understanding of energy efficiency and sustainability concepts.

**Associations:**

- **Participants:** Various school associations, clubs, and student organizations.
- **Role:** Promote the project within the school community, organize events and workshops related to the project, and engage in peer-to-peer education and dissemination activities.

**Families:**



- **Participants:** Parents and guardians of the students.
- **Role:** Support the project by encouraging their children’s participation and engagement. They also participate in community events and workshops, contributing to the overall awareness and success of the project.

**Professionals:**

- **Participants:** Professionals from Signify and the advisor group that supports the NEBLAB Eco<sup>2</sup>schools project.
- **Role:** Signify professionals designed and implemented the smart lighting intervention. The advisor group provides ongoing support and expertise, ensuring the project's alignment with broader sustainability and educational goals.

**Supportive Institutions:**

- **Participants:** EU through Erasmus+, Signify.
- **Role:** Offer financial, technical, and advisory support for the project. This project is supported and financed by the EU through the Erasmus+ Project, facilitating resources, providing funding, and contributing to the overall strategic direction and sustainability of the initiative.

**Management Committee:**

- **Participants:** Board of the school as the key decision-makers.
- **Role:** Oversee the project’s implementation, ensure alignment with the school’s strategic goals, and make key decisions regarding resource allocation and project priorities. They provide leadership and ensure the project’s long-term success and sustainability.

**Which first actions are active for implementation? (prepared by the “core team” and enriched with the “community” in common workshops).**

*The initial actions for the implementation of our smart lighting system project, developed by the core team and enriched through community workshops, are outlined below. These actions are interconnected, fostering a systemic change approach, and each one is led by a committed team to ensure long-term success. The actions are documented for follow-up, with shared learnings, continuous improvement, and communication through common resources, an agenda, and a communication plan.*

**Transparent Communication**

- **Leader and Team:** School communication team and student organizations.
- **Actions:**
  - *Our school’s communication team is responsible for managing the communication and publications related to the project.*
  - *Student organizations actively participate by utilizing their own digital channels to communicate project updates.*
  - *Our partner, Signify, uses our school as a reference for similar projects and communicates progress through its channels.*

**Climate Education**

- **Leader and Team:** Educational coordinators and teaching staff.
- **Actions:**
  - *Integration of the smart lighting project into the school curriculum, particularly in environmental education lessons.*
  - *Teachers use the project as a real-world example in physics, environmental education, mathematics, and economics lessons.*
  - *Students engage with the project by using the data collected for case studies and assignments, providing a hands-on learning experience.*



## Green Transformation

- **Leader and Team:** Environmental educators and student community.
- **Actions:**
  - The smart lighting project is a stepping stone towards our vision of converting the school into a green campus.
  - This transition is planned to occur in stages, involving the student community at each step to ensure it is both a renovation and an environmental learning process.
  - Students are actively involved in monitoring the energy consumption and evaluating the efficiency of the new lighting system.

## Common Values and Cooperative Process

- **Leader and Team:** Project leaders, student organizations, and community representatives.
- **Actions:**
  - Development of a charter of commitment outlining the common values and rules governing the project.
  - Implementation of participative decision-making processes involving students, staff, and community members.
  - Management of a cooperative budget for the project, ensuring transparency and shared responsibility.
  - Creating shared infrastructures and tools to support the ongoing monitoring and evaluation of the lighting system.

While other areas like sustainable food and food waste management are part of our broader green action plan, they are not directly connected to the smart lighting project. However, these initiatives reflect our commitment to sustainability and involve active participation from the student organization "food group" and kitchen staff to reduce food waste and promote sustainable food practices.

## ACTION 1

### Name of the action: Installation of the Smart Lighting System

Leader: Georgios Savvas

Committed team:

- Daniel Öhman-Spåman (Leader of the facilities)
- Anders Lind (Signify)

Short description of the implementation (expected):

The smart lighting system was installed in selected classrooms by the end of 2023. The system includes energy-efficient LED lights with smart controls to optimize lighting based on occupancy and daylight availability. The implementation aimed to significantly reduce energy consumption and serve as a practical example of sustainable development within the school.

First "test activities":

- Initial system setup and calibration
- Monitoring and data collection on energy consumption
- Evaluation of system performance during different times of the day and year
- Feedback collection from students and teachers regarding lighting quality and usability

#### Schedule:

- Start Date: January 2023
- First Tests: January 2024
- Substantial Completion Date: December 2023
- Testing Period: January 2024 - December 2024

#### Goals (SMART = Specific, Measurable, Achievable, Realistic, Timely):

- Specific: Reduce energy consumption in classrooms by implementing a smart lighting system.
- Measurable: Achieve an 80% reduction in energy consumption compared to baseline levels.
- Achievable: Utilize proven smart lighting technology from Signify and expert installation by the committed team.
- Realistic: Focus on selected classrooms initially to ensure manageability and accuracy in measurement.
- Timely: Complete installation by December 2023, with testing and evaluation through December 2024.

#### Indicators (how do we measure progress, ex. energy need decrease?):

- Energy Consumption: Measure the reduction in energy use in classrooms equipped with the smart lighting system.
- User Feedback: Collect and analyze feedback from students and teachers regarding lighting quality and effectiveness.
- System Performance: Monitor system reliability and functionality over time.
- Relation with other targeted actions (short describe the interaction):
- Climate Education: The data collected from the smart lighting system will be used in environmental education lessons, allowing students to analyze real-world data and understand the impact of energy efficiency measures.
- Green Transformation: The success of the smart lighting system serves as a model for other sustainability initiatives within the school, promoting a broader green transformation.
- Transparent Communication: Regular updates on the project's progress and results will be shared through the school's communication channels, student organizations, and Signify's platforms.
- Realistic project needs (accessible resources, time, persons, budget):
- Resources: Access to smart lighting technology and expertise from Signify.
- Time: One year for initial testing and data collection, with ongoing monitoring.
- Persons: Dedicated team led by Georgios Savvas, including Daniel Öhman-Spåman and Anders Lind.

Budget: Adequate funding for the purchase and installation of the smart lighting system, as well as for ongoing monitoring and maintenance.

### What are the project's (expected) overall goals in energy needs decrease, smart use of the buildings and with renewables energy self-consumption?

#### Goals related to energy needs decrease:

1. **Reduce overall energy consumption in classrooms by 80%** through the installation of smart lighting systems.
2. **Achieve a 50% reduction in energy consumption across all targeted areas** (classrooms, offices, common areas) by 2025 by implementing additional energy efficiency measures such as improved insulation and energy-efficient appliances.



3. **Monitor and document energy usage patterns** to identify further opportunities for energy reduction and efficiency improvements.

#### Goals related to smart use of the buildings:

1. **Implement smart controls and automation systems** in 100% of classrooms and common areas by 2025 to optimize energy usage based on occupancy and daylight availability.
2. **Develop a centralized energy management system** to monitor, control, and optimize energy use across the school campus, ensuring real-time adjustments and improvements.
3. **Engage students and staff in smart building practices** through educational programs and interactive tools, fostering a culture of energy consciousness and sustainability.

#### Goals related to renewables energy self-consumption:

1. **Increase renewable energy generation** by installing solar panels on the school's rooftops, targeting 30% of the school's total energy needs by 2025.
2. **Implement energy storage solutions** to maximize the use of renewable energy generated on-site, reducing reliance on external energy sources.
3. **Explore and integrate other renewable energy sources** such as wind or geothermal energy, aiming to further increase the school's renewable energy self-consumption to 50% by 2030.

### Additional Special Project Requirements Not Already Covered

#### Pedagogical Methodologies

##### 1. **Experiential Learning:**

- Incorporate hands-on, real-world projects related to the smart lighting system into the curriculum.
- Students will engage in data collection, analysis, and problem-solving activities, applying theoretical knowledge to practical scenarios.
- Example: Students use energy consumption data from the smart lighting system for science and math projects, enabling them to directly see the impact of energy efficiency measures.

##### 2. **Project-Based Learning (PBL):**

- Facilitate interdisciplinary projects that allow students to explore and address real-world challenges related to sustainability and energy efficiency.
- Projects are designed to be collaborative, with students working in teams to research, design, and implement solutions.
- Example: A PBL unit where students design proposals for further energy efficiency improvements in the school, using the smart lighting system as a case study.

##### 3. **Inquiry-Based Learning:**

- Encourage students to ask questions and conduct investigations related to the smart lighting system and broader sustainability issues.
- This approach fosters critical thinking and scientific inquiry, as students develop hypotheses, conduct experiments, and draw conclusions.
- Example: An inquiry project where students investigate the impact of different lighting conditions on energy use and classroom environment.

##### 4. **Blended Learning:**

- Utilize digital tools and online platforms to enhance learning and provide access to real-time data from the smart lighting system.
- Combine traditional classroom instruction with online resources and activities to create a flexible and engaging learning environment.

- Example: Students use an online dashboard to monitor and analyze energy consumption data, complementing their classroom lessons on energy and sustainability.

#### 5. Collaborative Learning:

- Promote teamwork and collaboration among students, teachers, and external partners (such as Signify) to achieve project goals.
- Encourage peer-to-peer learning and knowledge sharing through group projects and presentations.
- Example: Students work in groups to create presentations on their findings from the smart lighting system data, sharing insights with their peers and the wider school community.

### Special Project Requirements

#### 1. Ongoing Professional Development for Teachers:

- Provide training and support for teachers to effectively integrate the smart lighting system project into their lessons.
- Workshops and seminars on energy efficiency, smart building technologies, and sustainable practices.
- Continuous professional development to keep teachers updated on the latest advancements and methodologies.

#### 2. Community and Stakeholder Engagement:

- Actively involve the local community, parents, and stakeholders in the project to foster a sense of ownership and support.
- Organize workshops, open house events, and presentations to share progress and gather feedback.
- Example: Community workshops on the benefits of smart lighting and energy efficiency, involving students as presenters and facilitators.

#### 3. Sustainability and Maintenance Plan:

- Develop a comprehensive plan for the long-term sustainability and maintenance of the smart lighting system.
- Ensure that there are clear guidelines and resources for ongoing monitoring, maintenance, and potential upgrades.
- Example: A maintenance schedule and protocol for regularly checking the smart lighting system's performance and addressing any issues.

#### 4. Accessibility and Inclusivity:

- Ensure that all project activities and educational materials are accessible to all students, including those with special needs.
- Design activities and resources to be inclusive, promoting equal participation and learning opportunities.
- Example: Providing accessible data visualization tools and resources for students with disabilities to engage with the energy consumption data.

#### 5. Ethical Considerations:

- Address any ethical concerns related to the data collection and use of smart technologies.
- Ensure that student privacy is protected and that data is used responsibly and transparently.
- Example: Establish clear policies on data privacy and security, and educate students on ethical data use.

**References to the green action plan and the dedicated Miro online whiteboard (schematic representation of the current process)**

**Test Activity 1: "Turn Off the Lights Challenge"**

Description:

Title: "Smart Lighting Energy Reduction Challenge"

Participants: Students, School Management, Facilities Team, Communication Team

Description: This challenge involves students actively participating in reducing energy consumption by competing against the smart lighting system. Students will be encouraged to develop energy-efficient habits such as turning off lights when not needed. The smart lighting system will track and display real-time energy savings, fostering friendly competition between students and technology.

**Stakeholders:**

Facilitator:

- Oversees the challenge, ensures fair play, and monitors results.

Students:

- Actively participate in the challenge, changing habits to reduce energy consumption.

Smart Lighting System Team:

- Manages and monitors the smart lighting system's data, providing insights and feedback.

School Management:

- Supports and promotes the challenge, emphasizing the importance of energy efficiency.

Facilities Team:

- Collaborates to ensure the smooth functioning of the smart lighting system.

Communication Team:

- Communicates the challenge to the school community, encouraging participation and reporting outcomes.



Figure 12 - "Turn Off the lights Challenge representation in the Miro online whiteboard"

**Test Activity 2: "Smart Lighting vs. Traditional Lighting Comparison"**

Description:

Title: "Energy Efficiency Analysis - Smart vs. Traditional Lighting"

Participants: Facilities Team, Learn Team, Communicate Team

Description: This activity involves comparing the energy consumption of classrooms equipped with the new smart lighting system against those with traditional lighting. The Facilities Team, in collaboration with the Learn and Communicate Teams, will collect and analyze data, aiming to demonstrate the efficiency and benefits of the smart lighting system.

**Stakeholders:**

Facilities Team:

- Leads the data collection process and energy consumption analysis.

Learn Team:

- Collaborates in analyzing the educational impact of the new lighting system.

Communicate Team:

- Develops materials and communications to share the results and benefits with the school community.

School Management:

- Receives and reviews the findings, making informed decisions based on the analysis.

Smart Lighting System Team:

- Provides technical insights and support for the energy consumption analysis.



## 5. Conclusions

This deliverable has presented the NEB-LAB implementation framework and the localized implementation plans of the 5 pilot sites.

The work that was done during the preparation of the Localised Implementation Plans provides a concrete understanding of the specific needs towards creating zero-energy educational buildings and neighborhoods, highlighting the key role of Educational Buildings in fostering a culture that supports sustainable practices and contributes to the objectives of the European Green Deal. Furthermore, the Localised Implementation Plans present the necessary educational activities that provide the crucial link between education, innovation, and environmental sustainability.

To wrap things up, this document has shown just how beneficial energy efficiency can be when renovating buildings. The insights from the 5 Pilot Sites serve as real-world examples that can guide and motivate other buildings and communities. The Localised Implementation Plans act as a roadmap, proving that with the right educational approaches and technologies, we can turn our buildings into eco-friendly, energy-efficient spaces that help the environment and improve the lives of those who use them. This deliverable has highlighted how important ongoing research, innovation, and teamwork are in achieving our shared sustainability goals.

The next challenge is the implementation activities of the Plans (WP4), through the continuous support of the Technical Team (WP3) and the systematic assessment of their impact to the local communities (WP5).

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## Annex I. Implementation Framework

ACTION	OUTPUT	TIPS
<b>Bring the core team together</b>		
<b>List of the core team</b> (Make sure you have representant of all the actors of your building. Did you think about the technical team? Of the student? The visitors?)	1..... 2..... 3..... 4..... 5.....	
<b>Have you communicated through the appropriate channels</b>		
<b>Have you communicated the project to all relevent stakeholders</b>		
<b>Have you put forward to all relevant stakeholders the values of the project and what's in it for them</b>		
<b>Create a solid communication into the core team</b>		
<b>Start by doing a Timeline of the year's meeting and event</b>		
<b>Transform that timeline into a concret Planning</b>		
<b>Divide the roles needed</b> (facilitator, secretary, time keeper, etc)		
<b>Create a centradlised information hub where all stakeholders can</b>		



<p><b>access the information</b> (notes and documents)</p>		
<p><b>Analyze the situation</b></p>		
<p>Each one observe (by going on the field) and analyze the problems from his own point of view</p>		<p>What are the sub-aspects that we need to analyse?</p> <ul style="list-style-type: none"> <li>• observation</li> <li>• talking with people</li> <li>• seeking data</li> <li>• interviewing people who are involved</li> <li>• have an idea of opinions and sensitivity of all participants)</li> </ul>
<p>Do you have all the representants concerned with the problem? If not, don't forget to interrogate them</p>		
<p>Do a resume of all the analysis.</p>	<p>For each problem, opportunity and strength analyse:</p> <ul style="list-style-type: none"> <li>• what is the issue,</li> <li>• what are the difficulties to take action with this issue,</li> <li>• what are the resources (human, financial, material, etc.)</li> <li>• what was already tried.</li> </ul> <p>You can make a table to help you with the analysis.</p>	
<p><b>Establish a vision</b></p>		
<p><b>Define a vision together</b> <b>(don't hesitate to dream in this part)</b></p>		<p>In order to achieve this, there should next be a brainstorming session around the key objectives that are written in the green action plan for each demonstration site, and how it resonates with the willing and the values of the core team. The following questions (amongst others) can be addressed during such a session.</p> <ul style="list-style-type: none"> <li>• Which values do we associate to a “green canteen”, an ecovillage, etc...? (any actions that are written in the green action plan)</li> </ul>

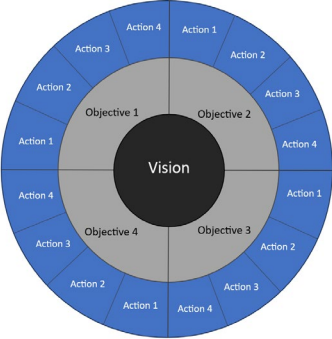
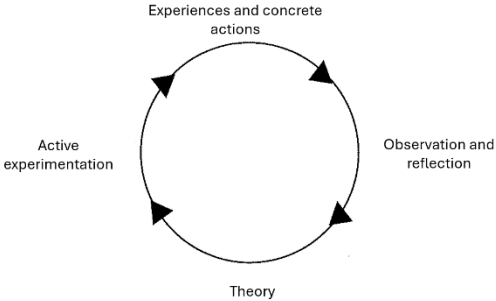


		<ul style="list-style-type: none"> <li>• What do we think about when we think about these values?</li> <li>• What is working well within the community and how?</li> <li>• What do you want to achieve as a school within 5 years?</li> <li>• What is your role in the wider community</li> <li>• Circle the key words that are mentioned most often and use these words as a skeleton for further implementation.</li> </ul>
<p><b>Define the objectives together (this is the part where you have to be more realistic)</b></p>	<p>1.....</p> <p>2.....</p> <p>3.....</p> <p>4.....</p> <p>5.....</p>	<p>Little tips to choose the right objectives:</p> <p>Define objectives based on the joint vision</p> <ol style="list-style-type: none"> <li>1. Make objectives SMART (Specific, Measurable, Acceptable, Realistic, Time-related)</li> <li>2. Only choose objectives that you can have an impact on as a community (core team)</li> <li>3. These objectives need to be supported by everyone, and will be a guideline in the next steps</li> </ol> <p><b><i>N.B Even though the stages are presented as linear, they are actually more circular. Core team members could go back and forward between the stages to implement the project. It can be good to come back here during your project</i></b></p>
<p><b>Brainstorm (Remember your actions must be following your objectives) and by following the different categories of actions you want to do. This will force you to list all type of actions you want to realise in order to not forget anything</b></p>		<p>To help the members of the core team to think outside the box, a good method is the Walt Disney 3-steps Brainstorming method. It consist of the following stages:</p> <ol style="list-style-type: none"> <li>1. Dreamer: Everybody writes down ideas and dreams, without limits (5 minutes)</li> <li>2. Realist: How to realize and who will do it? Where and how? (10 minutes)</li> <li>3. Critical: what are the limits (15min)</li> </ol>



<p><b>Take action</b></p>		<p><b>Don't forget to celebrate small victories along the road. It offers the core team members satisfaction about the work already done and encourages them to go to the next step</b></p>
<p><b>Choose actions</b></p>		<p><a href="#">It can be difficult to decide which action will be done as a group. To help, try "dot voting" (silent vote). Use stickers to to decide which actions will be chosen. Once chosen, make sure no one is frustrated by an action not being picked. If so, ask the person to express clearly why and talk as a group to decide if they think this action should be added. this way to work together is called "deep democracy".</a></p>
<p><b>Don't forget to take into account all the resources and the difficulties to be sure your action will succeed</b></p>		<p>Do you know <b>motivation is created by action</b>? For this reason, don't hesitate to make a test and go for small actions first, even if you don't feel completely ready to take action.</p>
<p><b>If you don't know where to start with your action, maybe it is too vague or maybe it is actually an objective. Don't hesitate to cut it into little steps and to make it more precise.</b></p>	<p>For each action write down:</p> <ul style="list-style-type: none"> <li>• which objective is it following,</li> <li>• who is going to do this,</li> <li>• is it an action of: awareness, education, communication, for the educational building,</li> <li>• deadline,</li> <li>• How to communicate about this action</li> </ul> <p>You can make a table to help you with the analysis.</p>	<p>You should always break down an action. If an action on your plan is too broad, such as "Reduce waste tonnage", then you need to take a step back and consider what smaller actions are required to help you to reach this outcome. In this example, create separate sub-actions for each of the departments that contribute towards the organisation's waste tonnage:</p> <ul style="list-style-type: none"> <li>• Catering: Audit current food waste volumes over 1 week</li> <li>• Operations: Get waste and recycling tonnages for the previous year from the waste contractor</li> <li>• Office: Put a paper recycling bin next to all photocopiers and printers</li> <li>• Marketing: Create educational posters to show what can go into each bin and with information about the benefits of recycling</li> </ul> <p>In this example, you can see what seems to be an action (Reduce waste</p>



		tonnage) but that is actually an objective. The actions associated are so the following ones.
<p><b>Communicate about your action plan in your building</b>  <b>Optional : use the cristal mapping</b></p>		<p>The purpose of the cristal mapping is to have something visual to help you communicate about your action plan to the rest of the community. The cristal mapping is a great visual graphic tool to have an overview of the action plan.</p>
<p><b>Transform that timeline into a concret Planning</b></p>	-	<p>Precise for each action (if you can):</p> <ul style="list-style-type: none"> <li>• what is the budget</li> <li>• Who is involved</li> <li>• what information is needed</li> <li>• who is responsible</li> <li>• the timeline</li> <li>• what material do you need</li> </ul>
<p><b>Organisational and community actions. List here all of the actions that will reinforce the community and help the project be inclusive and organised.</b></p>	-	<p>Precise for each action (if you can):</p> <ul style="list-style-type: none"> <li>• what is the budget</li> <li>• who is involved</li> <li>• what information is needed</li> <li>• who is responsible</li> <li>• the timeline</li> <li>• what kind of motivation is intended</li> <li>• how you intend on implicating a max amount of people</li> <li>• how many times will you do it</li> <li>• what material do you need</li> </ul>
<p><b>Educational actions (this involves both the students and the teachers). List here all of the educational activities that will take place that will promote awareness, critical thinking and empowerment for students and teachers</b></p>	 <p style="text-align: center;"><b>Kolb Circle</b></p>	<p>Be precise here:</p> <ul style="list-style-type: none"> <li>• for how many students</li> <li>• what is the goal</li> <li>• what is the outcome intended</li> <li>• which students (should start with the youngest first, or with a particular speciality?)</li> <li>• who will give the activity</li> <li>• what is the budget</li> <li>• the material you need</li> <li>• the timeline (consider that some students wont be there next year)</li> <li>• Same for teacher training</li> </ul>

		<i>to build a workshop you can base yourself on the Kolb Circle</i>
<b>Evaluate and disseminate</b>		
<b>We can evaluate the 3 next elements retrospectively and at the end of the project</b>	<p>For each the sections and together, answer the following question:</p> <ul style="list-style-type: none"> <li>• What did you evaluate and How? What was the sample (if quantitative)? Did you triangulate the potential results?</li> <li>• As a group: What was the most successful and difficult moment until now? Why what is a successful and difficult moment? How can we make sure that kind of successful action continues to happen or not happen again?</li> </ul>	
<b>1. What were the learnings as a group, how did we collaborate (relevance of the community)</b>		Do a KISS analysis (KEEP, IMPROVE, START, STOP)
<b>2. The steps and the process (efficiency)</b>		Do a KISS analysis (KEEP, IMPROVE, START, STOP)
<b>3. The results (usefulness)</b>		Do a KISS analysis (KEEP, IMPROVE, START, STOP)
<b>Celebrate in a sustainable way</b>		
<b>Communicate the results widely</b>		
<b>Organise at various steps of the project, events that are organised by the community in an inclusive way and Do a last big one at the end.</b>		



## Annex II. Localised Implementation Plan Template

Photo of the pilot site	<b>Name of campus</b>	<b>Region of the campus</b>
	<i>Sector:</i> Complete the sector (primary, secondary)	
	<i>District buildings portfolio:</i> School buildings (name if there is any different)	
	<i>Target groups:</i>	
	Link:	
<b>Description of the vision of the pilot site project</b>		
<b>What is the anticipated project schedule?</b>		
<b>What is the primary purpose, program, and use of this project; what areas are required for a functional facility?</b>		
<b>Are there any special project processes? Please describe all separate actions (why these actions are necessary)</b>		
<b>Describe any goals relative to project needs. (e.g., future expansions, flexibility, quality of materials, and construction, maintenance, and operational costs)</b>		
<b>What must be accomplished for a successful project?</b>		
<b>How can we measure the sustainability of the project?</b>		
<b>What are the project's over all energy efficiency goals?</b>		
<b>What are the energy efficiency goals or requirements that will affect energy use?</b>		



<b>Additional Special Project Requirements Not Already Covered</b>
Indicate any special considerations and project requirements (i.e. pedagogical methodologies used)
<b>References to the green action plan and the dedicated miro</b>

<b>Communication and dissemination activities of the project</b>

