



Feel Green

Fostering Energy Efficiency Leaders :
Empowering Youth to Start a
Green Revolution

HANDBOOK OF GOOD PRACTICES

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TABLE OF CONTENTS

1. Introduction

- 1.1 About the FEEL GREEN Project
- 1.2 Purpose of the E-Handbook
- 1.3 Objectives of the Research Activity
- 1.4 Scope of the Research and Educational Analysis
- 1.5 Methodological Approach and Data Collection Strategy
- 1.6 Structure of the Handbook

2. Sustainability and Energy Efficiency in Europe

- 2.1 European Sustainability Challenges and the Policy Context of the Green Transition
- 2.2 The European Green Deal
- 2.3 GreenComp: The European Sustainability Competence Framework
- 2.4 Erasmus+ Priorities on Environment and Climate Action
- 2.5 The Sustainable Development Goals and Youth Participation
- 2.6 Why Sustainability Education Matters for Youth Workers

3. Research Methodology and Data Collection

- 3.1 Research Objectives and Analytical Framework
- 3.2 State-of-the-Art Analysis Across the EU and Partner Countries
 - 3.2.1 Analytical Approach
 - 3.2.2 European Landscape of Sustainability and Energy Efficiency Education
 - 3.2.3 State of Play in Greece
 - 3.2.4 State of Play in Slovakia
 - 3.2.5 State of Play in Luxembourg
 - 3.2.6 Comparative Analysis and Research Gaps
- 3.3 Literature Review and Scientific Sources
- 3.4 Online Survey Methodology
- 3.5 Ethical Considerations and Data Reliability

4. Survey Findings and Educational Needs Assessment

- 4.1 Sustainability Awareness Among Participants
- 4.2 Organisational Practices in Sustainability and Energy Efficiency
- 4.3 Pedagogical Practices in Sustainability Education
- 4.4 Readiness for Digital Learning and Educational Innovation
- 4.5 Capacity-Building Needs, Implementation Barriers and Future Educational Priorities
- 4.6 Key Educational Priorities Emerging from the Research

TABLE OF CONTENTS

5. Educational Categories for Sustainability Learning Framework

- 5.1 Energy Efficiency Practices
- 5.2 Sustainable Consumption Practices
- 5.3 Climate Awareness and behavioral Change
- 5.4 Circular Economy and Waste Reduction
- 5.5 Community Participation and Active Citizenship
- 5.6 Digital Sustainability and Green Innovation
- 5.7 Educational Implications for Youth Work

6. Good Practices and Case Studies for Sustainability Education

- 6.1 Case Study 1 – Energy Efficiency Practices
- 6.2 Case Study 2 – Sustainable Consumption Practices
- 6.3 Case Study 3 – Climate Awareness and behavioral Change
- 6.4 Case Study 4 – Circular Economy and Waste Reduction
- 6.5 Case Study 5 – Community Participation and Active Citizenship
- 6.6 Case Study 6 – Digital Sustainability and Green Innovation
- 6.7 Cross-Case Analysis and Key Lessons Learned

7. Recommendations for Youth Workers and Educational Organizations

- 7.1 Overall Conclusions
- 7.2 Educational Implications for Youth Work
- 7.3 Recommendations for Youth Workers
- 7.4 Recommendations for Educational Organizations
- 7.5 Recommendations for Local Communities
- 7.6 Future Directions for Sustainability Education

1. Introduction

1.1 About the FEEL GREEN Project

FEEL GREEN (Fostering Energy Efficiency Leaders: Empowering Youth to Start a Green Revolution) is a European initiative implemented under the Erasmus+ Program with the aim of promoting sustainability awareness, energy efficiency education, and green skills development among young people and youth workers.

The project was developed in response to the growing environmental, social, and economic challenges associated with climate change, increasing energy consumption, unsustainable lifestyles, and the urgent need for a green transition across Europe. As environmental issues continue to affect communities at local, national, and global levels, there is a growing demand for educational approaches capable of empowering citizens, particularly young people, to actively participate in sustainability-oriented actions and decision-making processes.

FEEL GREEN brings together organizations from Greece, Slovakia, and Luxembourg in a collaborative effort to strengthen sustainability education through research, knowledge exchange, innovative educational resources, and practical learning opportunities. Through its activities, the project seeks to support youth workers in delivering high-quality non-formal education related to energy efficiency, environmental responsibility, sustainable lifestyles, and active citizenship.

A central component of the project is the development of educational resources that combine scientific evidence, policy priorities, practical methodologies, and real-life examples. These resources aim to facilitate the integration of sustainability topics into youth work while encouraging behavioral change, community participation, and environmental responsibility among young people.

The project further contributes to the broader objectives of the European Green Deal, the Sustainable Development Goals, and Erasmus+ priorities on environment and climate action by promoting sustainability competences, energy-conscious behavior, and active engagement in local and European sustainability initiatives.



1.2 Purpose of the E-Handbook

The FEEL GREEN E-Handbook has been developed as a comprehensive educational and research-based resource designed to support youth workers, educators, trainers, researchers, and organizations involved in sustainability and energy efficiency education. The handbook serves as one of the core outputs of the FEEL GREEN project and aims to bridge the gap between sustainability policies, research findings, educational methodologies, and practical implementation. It provides an integrated overview of current sustainability challenges, educational needs, energy efficiency practices, and innovative approaches that can be applied within youth work and non-formal learning environments.

More specifically, the handbook seeks to collect, analyse, and present knowledge emerging from the project's research activities, including literature review, comparative country analysis, stakeholder consultation, survey findings, and the identification of successful practices implemented across different European contexts.

Beyond its informative function, the handbook is intended to operate as a practical educational tool. It offers guidance on sustainability-related educational themes, participatory methodologies, behavioral change approaches, and examples of good practices that can inspire and support future educational interventions.

Furthermore, the handbook establishes the conceptual and educational foundation upon which the FEEL GREEN digital platform and future learning resources will be developed, ensuring coherence between research outcomes, educational content, and digital learning opportunities.



1.3 Objectives of the Research Activity

The research activity conducted within the FEEL GREEN project aimed to generate evidence-based knowledge regarding sustainability education, energy efficiency awareness, and green skills development among young people and youth workers.

The primary objective was to analyse the current state of sustainability and energy efficiency education across the partner countries and the wider European context in order to identify educational needs, existing gaps, challenges, and opportunities for improvement.

A further objective involved examining the level of awareness, attitudes, and behaviors related to sustainability and energy efficiency among different stakeholder groups, including young people, youth workers, educators, researchers, and community representatives.

The research additionally sought to identify educational techniques, methodologies, and good practices that have demonstrated positive outcomes in promoting sustainability awareness, behavioral change, and active participation. Particular attention was given to approaches that can be effectively integrated into non-formal education settings and youth work activities.

Another important objective was to categorise and organise the collected information into thematic educational areas that could support the development of structured learning resources and facilitate the future design of the FEEL GREEN digital platform. Ultimately, the research activity aimed to provide a solid foundation for the creation of practical, accessible, and evidence-based educational materials capable of supporting sustainability learning and encouraging young people to become active contributors to a greener and more sustainable future.

1.4 Scope of the Research and Educational Analysis

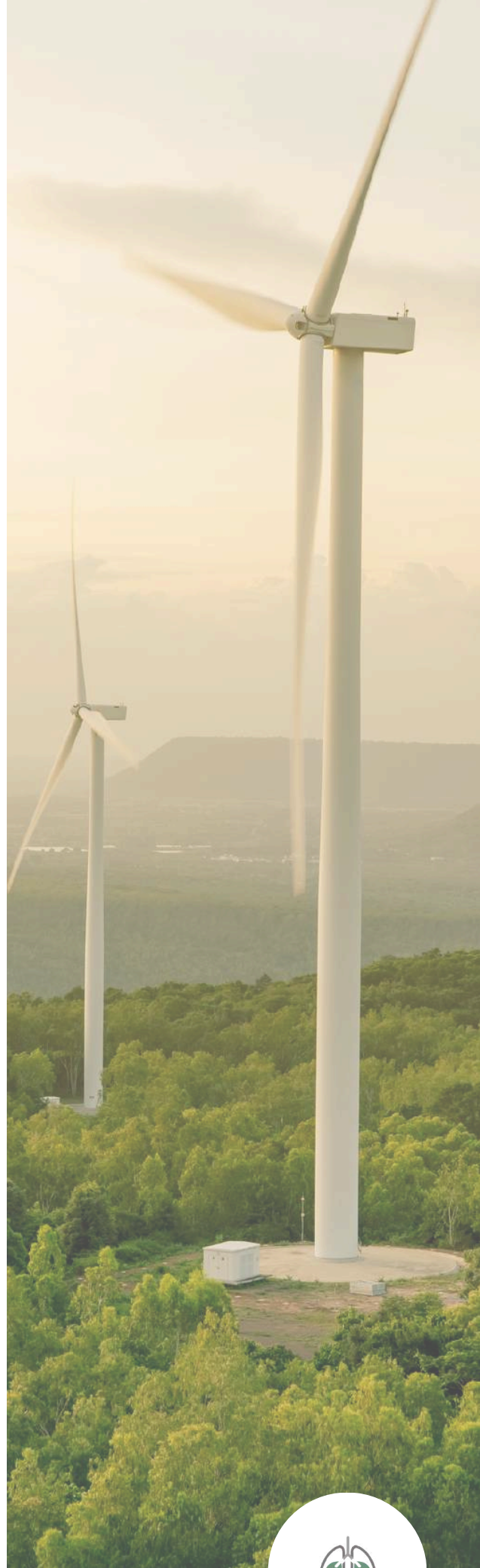
The scope of the FEEL GREEN research and educational analysis extends across multiple dimensions related to sustainability, energy efficiency, environmental awareness, youth participation, and non-formal education.

The research examined European sustainability policies, educational frameworks, environmental strategies, and current developments connected to the green transition. At the same time, it explored the realities experienced by youth workers and young people within the partner countries, identifying existing educational needs, barriers to participation, and opportunities for sustainability engagement.

Particular emphasis was placed on analysing educational approaches capable of supporting behavioral change, energy-conscious lifestyles, responsible consumption patterns, community participation, and active citizenship. The analysis also considered the growing role of digital technologies and innovative learning tools in supporting sustainability education.

The educational perspective adopted throughout the handbook is intentionally interdisciplinary. Sustainability is approached not only as an environmental issue but also as a social, economic, educational, and civic challenge that requires cooperation, participation, critical thinking, and collective responsibility.

As a result, the handbook combines policy analysis, research findings, educational methodologies, practical techniques, and real-life case studies in order to provide a comprehensive and balanced resource for sustainability-oriented youth work.





1.5 Methodological Approach and Data Collection Strategy

The development of the FEEL GREEN E-Handbook was based on a structured research methodology combining both qualitative and quantitative approaches. This mixed-methods framework was selected in order to ensure the collection of reliable, diverse, and evidence-based information capable of supporting the educational objectives of the project.

The research process incorporated several complementary activities, including literature review, analysis of European and national policy documents, comparative examination of partner-country contexts, stakeholder consultation, and the implementation of an online survey targeting individuals involved in sustainability education and youth work.

The online survey collected valuable information regarding sustainability awareness, energy efficiency behaviors, educational needs, learning preferences, and perceived barriers related to environmental participation. In parallel, stakeholders from the fields of sustainability, education, and energy efficiency contributed expertise and practical insights that enriched the analytical process.

The collected data were systematically analysed and organised into thematic categories reflecting the most relevant sustainability topics and educational priorities identified through the research. This categorisation process subsequently informed the structure of the handbook and contributed to the design of future educational materials and digital learning resources.

By combining scientific evidence, stakeholder perspectives, and practical experiences, the methodology ensured that the handbook reflects both theoretical knowledge and real-world educational needs.



1.6 Structure of the Handbook

The FEEL GREEN Handbook is organised into a series of interconnected chapters that progressively guide the reader from the theoretical foundations of sustainability education towards practical educational applications and evidence-based recommendations for youth work.

Following this introductory chapter, the handbook presents the European policy framework together with a comprehensive review of sustainability and energy efficiency education. It then describes the research methodology and presents the findings of both the documentary research and the empirical survey conducted among youth workers and relevant stakeholders in the partner countries.

Building upon these findings, the handbook introduces a structured educational framework consisting of six key sustainability learning categories that reflect the educational priorities identified through the research. These categories provide the pedagogical foundation for sustainability education within non-formal learning environments.

The following chapter presents a collection of European good practices and case studies illustrating successful initiatives across different sustainability themes. These examples demonstrate how the proposed educational approaches can be implemented in practice and adapted to diverse educational and community contexts.

Finally, the handbook concludes with a synthesis of the principal research findings together with practical recommendations for youth workers, educational organizations and local communities, while outlining future directions for sustainability education and the continued development of competence-based learning within youth work.

2. Sustainability and Energy Efficiency in Europe

The transition towards a more sustainable and climate-neutral Europe has become one of the defining priorities of contemporary European policy. Addressing environmental challenges such as climate change, biodiversity loss, resource depletion and increasing energy demands requires coordinated action across multiple sectors, with education recognized as a fundamental driver of long-term behavioral change and sustainable development. Within this context, youth work has gained increasing importance as a non-formal educational environment capable of empowering young people to develop the knowledge, competences and values necessary to contribute actively to Europe's green transition.

This chapter presents the European policy and educational framework that underpins the FEEL GREEN project. It reviews the principal European initiatives, strategies and competence frameworks that shape sustainability and energy efficiency education, including the European Green Deal, the GreenComp European Sustainability Competence Framework, Erasmus+ priorities on environment and climate action, and the Sustainable Development Goals. Together, these policy frameworks establish the strategic foundation upon which the research, educational framework and practical recommendations presented throughout this handbook have been developed.



2.1 European Sustainability Challenges and the Policy Context of the Green Transition

The transition towards a sustainable and climate-neutral future has become one of the most significant political, economic, and social priorities of the twenty-first century. Over the past decades, scientific evidence has increasingly demonstrated that human activities have contributed substantially to climate change, environmental degradation, biodiversity loss, resource depletion, and ecosystem disruption. These challenges have generated growing concern among governments, international organizations, researchers, and civil society, leading to the development of comprehensive policy frameworks aimed at supporting a sustainable transformation of contemporary societies.

Within the European Union (EU), sustainability has evolved from a primarily environmental concern into a cross-sectoral policy objective that influences economic development, industrial production, energy systems, education, transportation, agriculture, social inclusion, and innovation. The recognition that environmental sustainability cannot be achieved through isolated measures has encouraged European institutions to adopt integrated approaches that address environmental, economic, and social dimensions simultaneously.

One of the most pressing sustainability challenges facing Europe is climate change. According to the Intergovernmental Panel on Climate Change (IPCC), anthropogenic greenhouse gas emissions resulting from energy production, transportation, industrial activities, agriculture, and land-use changes have significantly increased global temperatures since the pre-industrial era. Rising temperatures have been associated with more frequent and severe heatwaves, droughts, floods, wildfires, and other extreme weather events, affecting ecosystems, infrastructure, public health, and economic stability across Europe and beyond.



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Alongside climate change, biodiversity loss has emerged as another major sustainability challenge. The degradation of natural habitats, unsustainable land use, pollution, invasive species, and climate-related pressures have accelerated the decline of ecosystems throughout Europe. Biodiversity plays a critical role in maintaining ecosystem services such as food production, water purification, carbon sequestration, and climate regulation. Consequently, the protection and restoration of biodiversity have become essential components of European sustainability strategies.

Resource consumption and waste generation also present significant challenges for sustainable development. Despite improvements in resource efficiency, European economies continue to rely heavily on the extraction and consumption of natural resources. Linear production and consumption models, characterized by the "take-make-dispose" approach, contribute to environmental degradation, increased waste generation, and greenhouse gas emissions. As a result, European institutions have increasingly promoted circular economy principles aimed at extending product lifecycles, reducing waste, increasing recycling rates, and improving resource efficiency.

Energy-related challenges constitute another central pillar of the sustainability agenda. Historically, the European Union has depended significantly on fossil fuels to support economic development and energy security. However, fossil fuel dependency has contributed substantially to greenhouse gas emissions while simultaneously exposing Member States to energy market volatility and geopolitical risks. The energy crisis that intensified following the Russian invasion of Ukraine in 2022 further highlighted the strategic importance of reducing fossil fuel dependency, diversifying energy sources, and accelerating investments in renewable energy and energy efficiency.

In response to these interconnected challenges, the concept of the "green transition" has emerged as a comprehensive policy framework guiding Europe's transformation towards a climate-neutral, resource-efficient, and sustainable future. The green transition refers to the systematic process of redesigning economic systems, production methods, consumption patterns, governance structures, and societal behaviors in ways that support environmental sustainability while maintaining economic prosperity and social cohesion.

The policy foundations of the European green transition can be traced back to several international and European commitments adopted over recent decades. At the global level, the adoption of the Paris Agreement in 2015 represented a landmark moment in international climate governance. The Agreement established the objective of limiting global temperature increases to well below 2°C above pre-industrial levels while pursuing efforts to limit warming to 1.5°C. All Member States of the European Union are parties to the Paris Agreement and have committed to implementing measures that contribute to its objectives.

The same year witnessed the adoption of the United Nations 2030 Agenda for Sustainable Development and its seventeen Sustainable Development Goals (SDGs). The SDGs introduced a comprehensive framework addressing interconnected challenges related to poverty, education, health, inequality, environmental sustainability, climate action, and global partnerships. The Agenda reinforced the understanding that sustainability requires integrated and coordinated action across multiple sectors and governance levels.

Within the European Union, these international commitments have significantly influenced the development of sustainability-related policies and legislation. A major milestone was reached in December 2019 with the adoption of the European Green Deal by the European Commission. The European Green Deal established a new growth strategy designed to transform the European Union into a modern, resource-efficient, and competitive economy while achieving climate neutrality by 2050. It also introduced a wide range of legislative initiatives and investment mechanisms aimed at accelerating environmental and climate action across all sectors.

The adoption of the European Climate Law in 2021 further strengthened the policy framework of the green transition by transforming the climate neutrality objective into a legally binding commitment. The Regulation established the legal obligation for the European Union to achieve net-zero greenhouse gas emissions by 2050 and introduced an intermediate target of reducing greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels. Subsequent initiatives, including the Fit for 55 Package and the REPowerEU Plan, have expanded the policy architecture supporting the green transition. These initiatives focus on accelerating renewable energy deployment, improving energy efficiency, strengthening energy security, reducing fossil fuel dependency, and supporting sustainable innovation across Member States.

Importantly, European institutions increasingly recognize that technological innovation and regulatory reforms alone are insufficient to achieve sustainability objectives. The success of the green transition depends heavily on citizens' attitudes, behaviors, competences, and willingness to participate in sustainability-oriented actions. Consequently, education has become a strategic policy instrument for supporting environmental awareness, behavioral change, democratic participation, and sustainability competence development.

This perspective has led to growing policy attention towards Education for Sustainable Development (ESD), environmental literacy, green skills, and lifelong learning. Frameworks such as GreenComp, the Council Recommendation on Learning for Environmental Sustainability, and Erasmus+ priorities on Environment and Climate Action explicitly emphasize the role of educational institutions, youth organizations, educators, and youth workers in fostering sustainability competences and empowering citizens to actively contribute to the green transition.

Within this context, youth workers occupy a particularly important position. Through non-formal learning approaches, community engagement activities, and participatory educational methodologies, youth workers can support young people in understanding sustainability challenges, developing critical thinking skills, adopting responsible behaviors, and participating actively in environmental and climate-related initiatives.

The FEEL GREEN project is directly situated within this evolving European policy landscape. By focusing on energy efficiency education, sustainability awareness, behavioral change, and youth participation, the project contributes to the implementation of key European sustainability priorities while supporting the broader objectives of the European Green Deal, the Sustainable Development Goals, GreenComp, and Erasmus+ environmental policies. The research and educational activities developed within the project seek to strengthen the capacity of youth workers and young people to engage meaningfully with sustainability challenges and to become active contributors to Europe's green transition.



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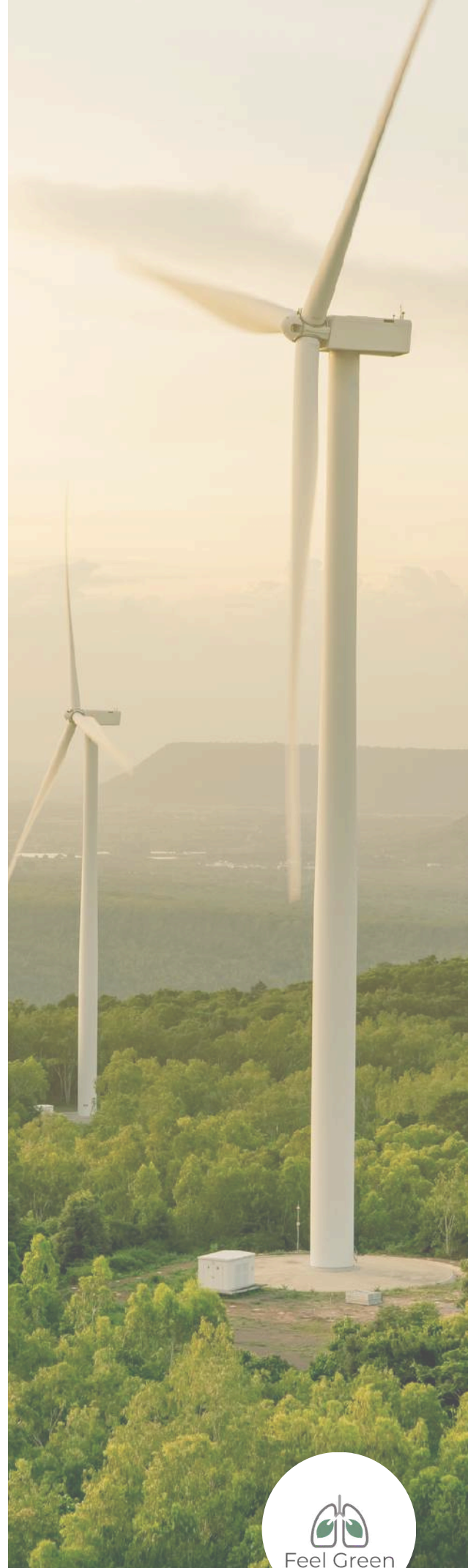
2.2 The European Green Deal

The European Green Deal represents the most comprehensive sustainability and climate policy framework ever adopted by the European Union. Presented by the European Commission on 11 December 2019, under the leadership of Commission President Ursula von der Leyen, the European Green Deal was established as a new growth strategy designed to transform the European Union into a modern, resource-efficient, competitive, and climate-neutral economy. The initiative was developed in response to escalating environmental challenges, increasing climate-related risks, biodiversity loss, resource depletion, and the growing urgency to fulfil the commitments established under the Paris Agreement and the United Nations 2030 Agenda for Sustainable Development.

The European Green Deal constitutes a long-term policy roadmap that seeks to fundamentally transform the European economic model while ensuring that economic growth is decoupled from resource consumption and environmental degradation. Unlike previous environmental policies that primarily focused on sector-specific interventions, the Green Deal introduced a systemic approach that integrates climate action, energy policy, industrial transformation, sustainable finance, circular economy principles, biodiversity protection, sustainable mobility, agriculture, and education into a unified strategic framework.

The central objective of the European Green Deal is to achieve climate neutrality by 2050, making Europe the first climate-neutral continent globally. Climate neutrality refers to achieving a balance between greenhouse gas emissions generated by human activities and the removal of greenhouse gases from the atmosphere through natural and technological carbon sinks. This objective was subsequently reinforced through the adoption of the European Climate Law in 2021, which transformed the climate neutrality target into a legally binding obligation for all Member States.

In addition to the 2050 climate neutrality target, the Green Deal established several intermediate objectives designed to accelerate the transition towards a low-carbon economy. One of the most significant milestones involves the commitment to reduce net greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels. This target forms the basis of the Fit for 55 legislative package and serves as the primary benchmark for evaluating progress towards climate neutrality.





The European Green Deal is structured around several interconnected policy pillars. The first pillar concerns climate action and the reduction of greenhouse gas emissions across all economic sectors. This includes strengthening emissions trading mechanisms, promoting renewable energy deployment, increasing energy efficiency, and supporting low-carbon technologies. The second pillar focuses on clean and secure energy systems, recognizing that the energy sector accounts for a significant proportion of European greenhouse gas emissions. The Green Deal therefore prioritizes investments in renewable energy sources, smart energy systems, energy storage technologies, and energy efficiency improvements across residential, commercial, and industrial sectors.

A third pillar relates to the transition towards a circular economy. The Circular Economy Action Plan, adopted in 2020 as part of the Green Deal framework, promotes sustainable product design, waste prevention, increased recycling rates, resource efficiency, and sustainable consumption patterns. By encouraging more sustainable production and consumption models, the European Union aims to reduce environmental pressures while enhancing economic resilience and competitiveness.

The protection and restoration of biodiversity constitute another fundamental component of the Green Deal. In 2020, the European Commission adopted the EU Biodiversity Strategy for 2030, which established ambitious targets for ecosystem restoration, protected areas, sustainable land use, and biodiversity conservation. The strategy recognizes biodiversity as a critical element of environmental sustainability, climate resilience, food security, and human well-being.

Sustainable mobility also represents a key policy area within the Green Deal. The transport sector remains one of the largest contributors to greenhouse gas emissions in Europe. Consequently, the European Union has introduced measures aimed at promoting low-emission transport systems, expanding public transportation networks, supporting electric mobility, and developing sustainable urban mobility strategies.

The Green Deal further recognizes that the transition towards climate neutrality must be socially fair and inclusive. The concept of a "Just Transition" emerged as a central principle of the policy framework, ensuring that regions, communities, workers, and economic sectors disproportionately affected by the transition receive adequate support. To facilitate this objective, the European Commission established the Just Transition Mechanism in 2020, mobilizing significant financial resources to support affected regions and promote social cohesion throughout the transition process.

The implementation of the European Green Deal relies on a broad portfolio of legislative, financial, and governance instruments. Among the most important policy initiatives associated with the Green Deal are the European Climate Law (2021), the Fit for 55 Package (2021), the Circular Economy Action Plan (2020), the EU Biodiversity Strategy for 2030 (2020), the Farm to Fork Strategy (2020), the Sustainable and Smart Mobility Strategy (2020), and the REPowerEU Plan (2022). Together, these initiatives create an integrated policy ecosystem designed to accelerate environmental sustainability and climate action throughout the European Union. Importantly, the Green Deal extends beyond technological innovation and regulatory reform. The European Commission explicitly acknowledges that achieving climate neutrality requires substantial societal transformation involving behavioral change, active citizenship, sustainability awareness, and the development of new competences. Consequently, education and training have become increasingly prominent within Green Deal implementation strategies.

The European Commission has repeatedly emphasized the importance of equipping citizens with the knowledge, skills, attitudes, and values necessary to participate effectively in the green transition. Educational systems, youth organizations, civil society actors, and non-formal learning providers are therefore expected to play a central role in fostering sustainability literacy, environmental responsibility, critical thinking, and active participation. This educational dimension has subsequently influenced several complementary initiatives, including GreenComp: The European Sustainability Competence Framework, the Council Recommendation on Learning for Environmental Sustainability, and the integration of environmental priorities within the Erasmus+ Program. For youth work, the European Green Deal provides a strategic framework that highlights the importance of engaging young people in sustainability-related learning and action. Youth workers are increasingly recognized as facilitators of environmental awareness, behavioral change, community participation, and sustainability competence development. Through non-formal education approaches, youth organizations can contribute significantly to the achievement of Green Deal objectives by empowering young people to become active participants in local, national, and European sustainability efforts.

The FEEL GREEN project directly contributes to the implementation of the European Green Deal by promoting energy efficiency awareness, sustainability education, environmental responsibility, and youth participation. Through research activities, educational resources, digital learning opportunities, and the dissemination of good practices, the project supports the broader European objective of preparing citizens for an environmentally sustainable and climate-neutral future. In doing so, FEEL GREEN aligns closely with the educational and participatory dimensions of the Green Deal and reinforces the role of youth work as a catalyst for sustainability-oriented social transformation.



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2.3 GreenComp: The European Sustainability Competence Framework

The growing recognition that sustainability challenges require not only technological and policy solutions but also significant behavioral, social, and cultural transformation has led European institutions to place increasing emphasis on competence development as a key driver of the green transition. While climate policies, environmental regulations, and technological innovations establish the structural conditions necessary for sustainability, their successful implementation ultimately depends on the ability of citizens to understand complex environmental issues, make informed decisions, and actively contribute to sustainable development.

In response to this need, the European Commission's Joint Research Centre (JRC) developed the GreenComp: The European Sustainability Competence Framework, which was officially published in January 2022. GreenComp was designed as a comprehensive reference framework that defines the knowledge, skills, attitudes, and values necessary for individuals to contribute to a sustainable future. It represents the first European competence framework specifically dedicated to sustainability and serves as a common reference point for policymakers, educators, curriculum developers, youth organizations, researchers, and training providers across Europe.

The development of GreenComp reflects the European Union's broader commitment to supporting the objectives of the European Green Deal and the transition towards climate neutrality. The framework acknowledges that sustainability challenges are complex, interconnected, and continuously evolving, requiring citizens to develop not only technical knowledge but also critical thinking, systems thinking, futures literacy, ethical responsibility, and collaborative problem-solving skills.

GreenComp was developed through an extensive review of existing sustainability competence frameworks, educational policies, academic literature, and international initiatives related to Education for Sustainable Development (ESD). The framework aligns closely with the United Nations Sustainable Development Goals (SDGs), UNESCO's Education for Sustainable Development agenda, and broader European priorities related to lifelong learning, active citizenship, and democratic participation.

Unlike traditional educational frameworks that focus primarily on knowledge acquisition, GreenComp adopts a holistic understanding of competence development. The framework defines sustainability competences as the combination of knowledge, skills, attitudes, and values that enable individuals to take informed, responsible, and effective action for environmental sustainability, social justice, and economic resilience. The framework is structured around four interconnected competence areas, each representing a fundamental dimension of sustainability learning and action.



Embodying Sustainability Values

The first competence area focuses on the development of sustainability-oriented values and ethical responsibility. GreenComp recognizes that sustainability is fundamentally linked to questions of fairness, justice, responsibility, and respect for both present and future generations. Individuals must therefore develop an awareness of how their decisions and behaviors affect other people, communities, ecosystems, and future societies.

This competence area includes three specific competences:

- Valuing sustainability
- Supporting fairness
- Promoting nature
-

These competences encourage learners to critically reflect upon their personal values, understand ethical dimensions of sustainability challenges, and recognize the intrinsic value of biodiversity and natural ecosystems.

Embracing Complexity in Sustainability

The second competence area acknowledges that sustainability challenges are characterized by complexity, uncertainty, and interdependence. Environmental issues such as climate change, energy security, biodiversity loss, and resource scarcity cannot be understood through isolated perspectives but require systems-based approaches capable of recognizing interactions between environmental, social, economic, and political factors.

This competence area consists of the following competences:

- Systems thinking
- Critical thinking
- Problem framing
-

These competences support learners in analyzing complex situations, identifying root causes of sustainability challenges, evaluating multiple perspectives, and understanding the interconnected nature of environmental and societal systems.

For sustainability education and youth work, systems thinking is particularly important because it enables learners to move beyond simplistic explanations and develop a more comprehensive understanding of sustainability-related issues.



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Envisioning Sustainable Futures

The third competence area focuses on futures literacy and the capacity to imagine alternative development pathways. GreenComp recognizes that addressing sustainability challenges requires the ability to anticipate future scenarios, assess long-term consequences, and explore innovative solutions capable of supporting sustainable development.

The competence area includes:

- Futures literacy
- Adaptability
- Exploratory thinking

These competences encourage individuals to engage with uncertainty, embrace innovation, and develop the capacity to respond effectively to changing environmental, technological, and societal conditions.

Within the context of sustainability education, envisioning sustainable futures supports creative thinking and empowers learners to become active contributors to positive social and environmental transformation rather than passive observers of change.

Acting for Sustainability

The fourth competence area focuses on translating knowledge, values, and awareness into concrete action. GreenComp emphasizes that sustainability competences should ultimately lead to participation, engagement, collaboration, and behavioral change.

The three competences included within this area are:

- Political agency
- Collective action
- Individual initiative

These competences support learners in identifying opportunities for engagement, participating in democratic processes, collaborating with others, and implementing sustainability-oriented actions within their communities.

This dimension is particularly relevant for youth work because it directly connects learning processes with civic participation and active citizenship. Through participatory educational approaches, youth workers can encourage young people to develop confidence, leadership skills, and practical experience in addressing sustainability challenges at local and European levels.

Collectively, the four competence areas encompass twelve sustainability competences that provide a comprehensive framework for sustainability learning across different educational contexts. Rather than prescribing specific curricula or teaching methods, GreenComp serves as a flexible reference tool that can be adapted to formal education, vocational training, higher education, lifelong learning, and non-formal educational settings.

One of the most significant contributions of GreenComp is its recognition of non-formal education as an important environment for sustainability competence development. The framework explicitly acknowledges that competences are developed through experiential learning, participation, reflection, collaboration, and real-world engagement. This perspective aligns closely with the principles of youth work and supports the use of learner-centered methodologies that encourage active participation and practical application.

or youth workers, GreenComp offers a valuable conceptual framework for designing educational activities, workshops, awareness campaigns, community projects, and learning experiences related to sustainability and energy efficiency. The framework can support the identification of learning outcomes, the development of educational materials, and the evaluation of sustainability-related competences among participants.

The relevance of GreenComp extends beyond environmental education. By integrating values, systems thinking, futures literacy, and action-oriented learning, the framework promotes a holistic understanding of sustainability that reflects the interconnected nature of contemporary challenges. This approach supports the development of responsible, informed, and engaged citizens capable of contributing to the objectives of the European Green Deal and broader sustainability agendas.

Within the FEEL GREEN project, GreenComp serves as one of the most important conceptual and pedagogical reference frameworks. The project's emphasis on energy efficiency, sustainability awareness, behavioral change, active participation, and community engagement reflects several core GreenComp competences. Furthermore, the educational materials, methodologies, and learning resources developed through FEEL GREEN aim to support the acquisition of sustainability competences that empower young people to become active participants in Europe's green transition.

By aligning with GreenComp, the FEEL GREEN project contributes not only to environmental awareness but also to the broader European objective of fostering sustainability competences that enable individuals and communities to address current and future sustainability challenges effectively and responsibly.





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2.4 Erasmus+ Priorities on Environment and Climate Action

The increasing urgency of climate change, environmental degradation, biodiversity loss, and resource scarcity has significantly influenced the strategic orientation of European educational policies over the last decade. Recognizing that education and training play a crucial role in supporting sustainable development and societal transformation, the European Union has progressively integrated environmental sustainability objectives into its educational and youth programs. Within this context, the Erasmus+ Program has emerged as one of the European Union's most important instruments for promoting environmental awareness, sustainability competences, and climate action among learners, educators, youth workers, and organizations.

The Erasmus+ Program 2021–2027, established through Regulation (EU) 2021/817 of the European Parliament and the Council, introduced Environment and the Fight against Climate Change as one of its four horizontal priorities. The inclusion of this priority reflects the broader political commitment of the European Union to support the objectives of the European Green Deal and to contribute to the achievement of climate neutrality by 2050. Alongside Inclusion and Diversity, Digital Transformation, and Participation in Democratic Life, environmental sustainability has become a cross-cutting objective that must be integrated across all sectors and actions supported by Erasmus+.

The environmental dimension of Erasmus+ builds upon previous efforts to encourage sustainable practices within education and youth activities. However, the 2021–2027 program period marks a significant shift from isolated environmental initiatives towards a more systemic approach that places sustainability at the center of educational innovation, organizational development, international cooperation, and citizen engagement.

According to the Erasmus+ Program Guide, the environmental priority aims to support projects that promote awareness of environmental and climate-related challenges, foster sustainability competences, encourage behavioral change, and contribute to the development of environmentally responsible societies. The program recognizes that education, training, youth work, and sport can play a decisive role in supporting the green transition by equipping individuals with the knowledge, skills, values, and attitudes necessary to address sustainability challenges effectively.





One of the central objectives of the Erasmus+ environmental priority is to strengthen environmental awareness among participants. The program encourages organizations to develop educational activities that help learners understand the causes and consequences of climate change, biodiversity loss, pollution, unsustainable consumption patterns, and resource depletion. Through awareness-raising initiatives, participants are expected to develop a deeper understanding of environmental issues and their implications for society, the economy, and future generations.

A second objective focuses on the development of green skills and sustainability competences. The European Commission increasingly recognizes that achieving climate neutrality requires a workforce and citizenry capable of supporting sustainable innovation, resource efficiency, renewable energy deployment, circular economy practices, and environmental governance. Consequently, Erasmus+ encourages projects that promote sustainability literacy, systems thinking, critical thinking, problem-solving, and active participation in sustainability-related activities.

The program also places significant emphasis on behavioral change and sustainable lifestyles. Environmental sustainability is not viewed solely as a matter of technological advancement or policy implementation but also as a question of individual and collective behavior. Erasmus+ therefore supports initiatives that encourage responsible consumption, sustainable mobility, energy efficiency, waste reduction, environmental volunteering, and community engagement. Educational approaches that combine knowledge acquisition with practical action are particularly encouraged because they increase the likelihood of long-term behavioral transformation.

Another important objective concerns organizational sustainability. Erasmus+ encourages participating organizations to integrate environmentally responsible practices into their operational activities and project management procedures. This includes reducing carbon footprints, minimizing waste, promoting digital alternatives to physical travel when appropriate, implementing sustainable procurement practices, and adopting environmentally friendly event management approaches. Through these measures, organizations are expected not only to teach sustainability but also to demonstrate sustainability in practice.

The program further promotes innovation in sustainability education by encouraging the development of new methodologies, digital tools, educational resources, and collaborative learning environments. Particular emphasis is placed on non-formal and informal learning approaches that enable participants to engage actively with environmental issues through experiential learning, project-based activities, peer learning, simulations, community initiatives, and participatory workshops.

Within the youth field, the environmental priority has particular significance. Youth organizations are recognized as key actors in supporting environmental awareness, active citizenship, and community engagement among young people. Through youth exchanges, mobility activities, training courses, cooperation partnerships, and local initiatives, Erasmus+ seeks to empower young people to become active contributors to environmental sustainability and climate action.

The program explicitly highlights the role of youth work in supporting the development of sustainability competences. Youth workers are encouraged to integrate environmental themes into their educational activities and to create opportunities for young people to explore sustainability challenges through participatory and learner-centered approaches. This perspective aligns closely with contemporary understandings of non-formal education, which emphasize experiential learning, critical reflection, social engagement, and active participation.

The environmental priority of Erasmus+ is closely connected to other major European policy frameworks. It directly supports the implementation of the European Green Deal, the European Climate Law, the Circular Economy Action Plan, the European Skills Agenda, the Sustainable Development Goals, and GreenComp: The European Sustainability Competence Framework. Through this policy alignment, Erasmus+ contributes to a broader European effort aimed at fostering environmentally responsible citizenship and supporting the transition towards a sustainable and climate-neutral future.

For projects operating within the youth sector, environmental sustainability is no longer considered an optional thematic area but rather a strategic priority that should be embedded throughout project design, implementation, dissemination, and evaluation processes. Applicants are encouraged to demonstrate how their projects contribute to environmental objectives and how sustainability considerations are integrated into both educational content and organizational practices.

Within this policy context, the FEEL GREEN project represents a direct response to Erasmus+ priorities on Environment and Climate Action. The project contributes to the program's objectives by promoting energy efficiency awareness, sustainability education, behavioral change, and green competence development among youth workers and young people. Through research activities, educational resources, good practice identification, and digital learning opportunities, FEEL GREEN supports the development of environmentally conscious citizens capable of actively contributing to local and European sustainability goals.

Furthermore, the project's emphasis on non-formal education, youth participation, community engagement, and sustainability competence development reflects the educational philosophy underpinning the Erasmus+ Program. By equipping youth workers with evidence-based methodologies, practical tools, and educational resources related to energy efficiency and sustainability, FEEL GREEN contributes to the broader European objective of empowering young people to participate actively in the green transition and to support the achievement of long-term climate and sustainability targets.



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2.5 The Sustainable Development Goals and Youth Participation

The Sustainable Development Goals (SDGs) constitute one of the most significant international policy frameworks for promoting sustainable development in the twenty-first century. Adopted by all United Nations Member States on 25 September 2015 as part of the 2030 Agenda for Sustainable Development, the SDGs established a universal blueprint for addressing global challenges related to poverty, inequality, environmental degradation, climate change, peace, prosperity, and social inclusion. Unlike previous development frameworks, the SDGs adopt a holistic and integrated approach that recognizes the interdependence of economic, social, and environmental dimensions of sustainability.

The adoption of the 2030 Agenda represented a landmark moment in international governance. Building upon the achievements and limitations of the Millennium Development Goals (MDGs), the SDGs introduced a more comprehensive framework designed to guide national and international policies until 2030. The Agenda is founded upon the principle of "leaving no one behind," emphasizing the importance of inclusive development and equitable opportunities for all individuals and communities.

The SDG framework consists of seventeen interconnected goals, 169 targets, and more than 230 indicators used to monitor progress at global, regional, national, and local levels. The goals address a broad spectrum of sustainability challenges, including poverty reduction, quality education, gender equality, clean energy, sustainable cities, responsible consumption, climate action, biodiversity conservation, and global partnerships.

A defining characteristic of the SDGs is their recognition that sustainability challenges cannot be addressed in isolation. Progress towards one goal often influences progress towards others, creating a complex system of interdependencies that requires integrated policy responses. This systems-oriented perspective aligns closely with contemporary understandings of sustainability and reflects many of the principles later incorporated into European sustainability frameworks such as GreenComp and the European Green Deal.

Several Sustainable Development Goals are particularly relevant to the objectives of the FEEL GREEN project and the broader field of sustainability education.





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SDG 4: Quality Education

SDG 4 seeks to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." Within this goal, Target 4.7 explicitly calls for all learners to acquire the knowledge and skills needed to promote sustainable development. This includes education related to sustainable lifestyles, human rights, gender equality, environmental sustainability, global citizenship, and cultural diversity.

The inclusion of sustainability education within SDG 4 reflects the growing international recognition that education is a fundamental enabler of sustainable development. Educational institutions, youth organizations, and non-formal learning providers are therefore expected to play a central role in preparing citizens to address current and future sustainability challenges.

SDG 7: Affordable and Clean Energy

SDG 7 focuses on ensuring access to affordable, reliable, sustainable, and modern energy for all. The goal promotes increased use of renewable energy sources, improvements in energy efficiency, and enhanced access to sustainable energy technologies.

Energy efficiency constitutes one of the most cost-effective mechanisms for reducing greenhouse gas emissions, improving energy security, and supporting climate mitigation efforts. Consequently, educational initiatives that promote energy literacy and responsible energy consumption contribute directly to the achievement of SDG 7.

Given its focus on energy efficiency awareness and behavioral change, the FEEL GREEN project directly supports the implementation of this goal.

SDG 11: Sustainable Cities and Communities

SDG 11 aims to make cities and human settlements inclusive, safe, resilient, and sustainable. The goal addresses challenges related to urbanization, mobility, environmental quality, public participation, cultural heritage, and climate resilience.

As more than 70% of the European population resides in urban areas, local communities have become important arenas for sustainability action. Youth participation in community initiatives, environmental campaigns, and local sustainability projects contributes significantly to the achievement of SDG 11 objectives.

SDG 12: Responsible Consumption and Production

SDG 12 promotes sustainable consumption and production patterns through improved resource efficiency, waste reduction, circular economy approaches, and sustainable lifestyles.

The goal recognizes that unsustainable consumption patterns are among the primary drivers of environmental degradation and climate change. Educational interventions aimed at increasing awareness of resource use, waste management, and responsible consumption play an important role in supporting SDG 12 implementation.



SDG 13: Climate Action

SDG 13 calls for urgent action to combat climate change and its impacts. The goal encourages climate mitigation, adaptation, resilience-building, and climate education.

Target 13.3 specifically emphasizes the importance of improving education, awareness-raising, and institutional capacity regarding climate change mitigation and adaptation. This target highlights the strategic role of education in supporting climate action and reinforcing environmental responsibility among citizens.

SDG 17: Partnerships for the Goals

SDG 17 focuses on strengthening partnerships and cooperation among governments, civil society organizations, educational institutions, businesses, and international organizations.

The implementation of sustainability policies increasingly depends upon collaborative approaches involving multiple stakeholders. European cooperation projects funded under programs such as Erasmus+ represent practical examples of SDG 17 in action, facilitating knowledge exchange, capacity building, and transnational cooperation for sustainable development.

Beyond their environmental dimension, the Sustainable Development Goals place considerable emphasis on participation, empowerment, and active citizenship. Young people are increasingly recognized as essential actors in the achievement of sustainable development objectives. Rather than being viewed solely as beneficiaries of sustainability policies, youth are now regarded as partners, innovators, advocates, and agents of change capable of contributing meaningfully to environmental and social transformation.

This shift in perspective is reflected in numerous international policy documents and United Nations initiatives. The United Nations Youth Strategy, launched in 2018, emphasizes the importance of youth engagement in achieving the 2030 Agenda and recognizes young people as critical stakeholders in shaping sustainable futures. Similarly, UNESCO and other international organizations have repeatedly highlighted the role of youth participation in addressing sustainability challenges and strengthening democratic governance.



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Youth participation contributes to sustainable development in several ways. Firstly, it enhances the legitimacy and effectiveness of sustainability policies by ensuring that young people's perspectives and experiences are considered in decision-making processes. Secondly, participation promotes ownership and engagement, increasing the likelihood that sustainability initiatives will generate long-term behavioral change. Finally, active participation enables young people to develop critical competences related to leadership, collaboration, problem-solving, democratic engagement, and social responsibility.

Within the field of youth work, participation is considered both a methodological principle and an educational objective. Non-formal learning approaches encourage young people to engage actively in identifying community challenges, designing solutions, implementing initiatives, and evaluating outcomes. Such approaches contribute not only to environmental awareness but also to the development of active citizenship and democratic participation.

The Sustainable Development Goals therefore provide an important policy framework for youth work and sustainability education. By promoting environmental responsibility, social inclusion, lifelong learning, community engagement, and international cooperation, the SDGs establish a comprehensive vision of sustainable development that extends beyond environmental protection alone.

The FEEL GREEN project is closely aligned with this vision. Through its emphasis on energy efficiency education, sustainability awareness, behavioral change, youth empowerment, and community participation, the project contributes directly to the implementation of several SDGs, particularly Goals 4, 7, 11, 12, 13, and 17. Furthermore, by equipping youth workers and young people with the knowledge, skills, and competences necessary to engage in sustainability-related action, FEEL GREEN supports the broader objective of empowering future generations to contribute actively to sustainable development at local, national, European, and global levels.

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2.6 Why Sustainability Education Matters for Youth Workers

The accelerating pace of environmental degradation, climate change, biodiversity loss, resource depletion, and energy insecurity has fundamentally transformed the role of education within contemporary societies. While sustainability challenges are often addressed through environmental policies, technological innovation, and economic reforms, there is growing recognition among policymakers, researchers, and international organizations that long-term sustainability transitions cannot be achieved without substantial changes in human behavior, social values, and civic engagement. Consequently, education has emerged as a critical mechanism for fostering the knowledge, competences, attitudes, and behaviors necessary to support sustainable development.

Within this context, youth workers occupy a particularly important position. As facilitators of non-formal learning, community engagement, active citizenship, and personal development, youth workers play a significant role in preparing young people to understand and respond to complex sustainability challenges. Their contribution extends beyond the transmission of information, encompassing the development of critical thinking, participation skills, environmental responsibility, and sustainability-oriented competences that enable young people to become active contributors to the green transition.

The increasing policy emphasis on sustainability education reflects broader developments at both international and European levels. The United Nations 2030 Agenda for Sustainable Development, UNESCO's Education for Sustainable Development (ESD) framework, the European Green Deal, GreenComp, and the Erasmus+ Program all recognize education as a strategic driver of sustainability transformation. These policy frameworks share the understanding that environmental sustainability cannot be achieved solely through regulatory measures and technological solutions. Rather, it requires informed, engaged, and responsible citizens capable of making sustainable decisions in their daily lives and participating actively in societal change.

Sustainability education is therefore increasingly understood as a lifelong learning process that empowers individuals to acquire the knowledge, skills, values, and attitudes necessary to contribute to sustainable development. This approach extends beyond traditional environmental education by addressing the interconnected environmental, social, economic, and cultural dimensions of sustainability. Learners are encouraged not only to understand sustainability challenges but also to critically analyze their causes, evaluate alternative solutions, and engage in actions that support positive environmental and social outcomes.

For youth workers, sustainability education represents an important opportunity to strengthen the relevance and impact of youth work within contemporary societies. Young people are among the generations most likely to experience the long-term consequences of climate change, environmental degradation, and resource scarcity. At the same time, they have demonstrated increasing interest in environmental issues and have emerged as prominent actors within global climate movements, sustainability campaigns, and community initiatives. As a result, youth organizations are increasingly expected to provide educational opportunities that enable young people to explore sustainability challenges, develop green competences, and participate in environmental action.



Research conducted by UNESCO, the European Commission, and various academic institutions consistently demonstrates that young people often express strong concern regarding environmental issues while simultaneously reporting limited confidence in their ability to influence sustainability outcomes. This gap between awareness and action highlights the importance of educational interventions that move beyond information provision and actively support participation, empowerment, and behavioral change.

Youth workers are uniquely positioned to address this challenge through the use of non-formal educational methodologies. Unlike traditional classroom environments, youth work often relies on participatory, learner-centered, and experiential approaches that encourage active engagement, reflection, collaboration, and practical application. These methodologies create opportunities for young people to connect sustainability concepts with their personal experiences, local communities, and everyday decision-making processes.

Experiential learning approaches are particularly relevant within sustainability education. Activities such as community projects, environmental campaigns, energy-saving initiatives, outdoor learning experiences, simulations, peer-learning activities, and civic engagement programs enable participants to develop practical understanding while simultaneously strengthening motivation and commitment to sustainability-related action. Through such experiences, sustainability becomes a lived reality rather than an abstract concept.

Furthermore, sustainability education contributes to the development of a wide range of transversal competences that are highly relevant for personal, social, and professional development. These include critical thinking, problem-solving, collaboration, communication, creativity, systems thinking, adaptability, and leadership. Such competences are increasingly recognized as essential for navigating the uncertainties and complexities associated with contemporary environmental and societal challenges.

The publication of GreenComp: The European Sustainability Competence Framework in 2022 further reinforced the strategic importance of sustainability competences within educational practice. GreenComp identifies a range of competences related to sustainability values, systems thinking, futures literacy, and action-oriented learning, many of which align closely with the principles and methodologies traditionally associated with youth work. Consequently, youth workers can play a significant role in supporting the development of these competences through non-formal learning activities and community-based educational interventions.

Another important aspect concerns the relationship between sustainability education and democratic participation. Sustainability challenges frequently involve complex policy decisions, competing interests, and long-term societal implications. Effective responses therefore require active citizenship, civic engagement, and participation in democratic processes. Sustainability education supports these objectives by encouraging learners to examine environmental issues critically, engage in dialogue, evaluate evidence, and participate constructively in decision-making processes affecting their communities.



The European Union has increasingly recognized this connection between sustainability and citizenship. Several policy initiatives, including the European Green Deal, Erasmus+ priorities on Environment and Climate Action, and the Council Recommendation on Learning for Environmental Sustainability, explicitly emphasize the importance of empowering citizens to participate actively in the green transition. Youth workers contribute directly to these objectives by creating educational environments that encourage participation, dialogue, social responsibility, and community engagement.

At the organizational level, sustainability education also provides youth organizations with opportunities to strengthen their social impact and align their activities with contemporary European priorities. By integrating sustainability themes into youth programs, organizations can contribute to environmental awareness, promote responsible behaviors, and support broader policy objectives related to climate action, energy efficiency, circular economy practices, and sustainable development.

Despite these opportunities, the integration of sustainability education into youth work is not without challenges. Research indicates that many youth workers feel insufficiently prepared to address sustainability-related topics due to limited training opportunities, lack of educational resources, and uncertainty regarding appropriate methodologies. In many cases, sustainability education remains fragmented or dependent upon individual initiative rather than being systematically embedded within youth work practice.

Addressing these challenges requires targeted support, capacity building, and access to high-quality educational materials that combine scientific evidence, policy relevance, practical methodologies, and real-life examples. Youth workers require resources that not only increase their knowledge of sustainability issues but also provide practical guidance on how to facilitate meaningful learning experiences capable of fostering behavioral change and active participation.

It is within this context that the FEEL GREEN project has been developed. By conducting research on sustainability education, identifying educational needs, collecting good practices, and developing evidence-based learning resources, the project seeks to strengthen the capacity of youth workers to address energy efficiency and sustainability topics effectively. Through its educational materials, digital resources, and methodological guidance, FEEL GREEN aims to support youth workers in creating engaging learning experiences that empower young people to become informed, responsible, and active participants in Europe's green transition.

Ultimately, sustainability education matters for youth workers because it equips them with the tools necessary to support one of the most important societal transformations of the twenty-first century. By fostering sustainability competences, environmental responsibility, and active citizenship among young people, youth workers contribute not only to educational development but also to the broader European and global effort to build more sustainable, resilient, and inclusive societies.





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3. Research Methodology and Data Collection

The development of the FEEL GREEN Handbook was grounded in a systematic and evidence-based research process designed to identify the educational needs, challenges and opportunities associated with sustainability and energy efficiency education within youth work. To ensure the reliability and practical relevance of the findings, the research combined documentary analysis, comparative country research, scientific literature review and primary data collection through an online stakeholder survey.

This mixed-methods approach enabled the project to examine the current European policy and educational landscape, explore national developments in the partner countries and gather empirical evidence from youth workers and other relevant stakeholders. The findings generated through this research constitute the evidence base upon which the educational framework, good practices and recommendations presented in the following chapters have been developed.





3.1 Research Objectives and Analytical Framework

In order to ensure that the project's outputs are aligned with existing educational needs, policy priorities, and current sustainability challenges, a comprehensive research process was conducted during the initial phase of the project.

The research activity constitutes a fundamental component of the FEEL GREEN project, providing the scientific and methodological foundation upon which the educational materials, the E-Handbook of Good Practices, and the FEEL GREEN digital platform are developed. The research process was designed to generate reliable evidence regarding current practices, educational needs, knowledge gaps, and opportunities related to sustainability and energy efficiency education within the youth sector.

More specifically, the research sought to examine the current state of sustainability and energy efficiency education across the participating countries and the wider European context, while simultaneously identifying educational approaches, methodologies, and good practices that can support the development of effective learning interventions for young people and youth workers.

Research Objectives

The overall objective of the research was to collect, analyze, and synthesize information related to sustainability education and energy efficiency practices in order to support the development of high-quality educational resources and strengthen the capacity of youth workers to address sustainability-related topics.

To achieve this objective, the research pursued several specific goals.

The first objective was to analyze the current policy and educational landscape regarding sustainability and energy efficiency within the European Union and the partner countries participating in the project. Particular attention was given to existing policy frameworks, educational initiatives, training programs, and sustainability-related strategies that influence youth work and non-formal education.





The second objective was to identify the educational needs of youth workers and young people in relation to sustainability, energy efficiency, climate action, and environmental responsibility. Understanding these needs was considered essential for ensuring that the project's educational resources respond effectively to the realities experienced by target groups.

A third objective focused on identifying barriers, challenges, and opportunities affecting the integration of sustainability topics within youth work activities. The research sought to explore both structural and educational factors that may influence the implementation of sustainability-oriented learning initiatives.

The fourth objective was to collect and analyze examples of effective educational practices, methodologies, and approaches that have demonstrated positive outcomes in promoting sustainability awareness, behavioral change, active citizenship, and energy-conscious behaviors among young people.

Another important objective involved examining the perceptions, attitudes, and behaviors of relevant stakeholders regarding sustainability and energy efficiency. Through survey-based data collection, the research aimed to generate insights into existing levels of awareness, engagement, and educational readiness across different participant groups.

Finally, the research aimed to organize the collected information into thematic educational categories that could subsequently support the development of the FEEL GREEN E-Handbook, training materials, and digital learning resources. This categorization process was particularly important for ensuring coherence between research findings and educational outputs.



Analytical Framework

The analytical framework adopted within the FEEL GREEN research was based on the assumption that sustainability education should be examined through a multidimensional perspective that combines environmental, educational, behavioral, and social dimensions.

Rather than focusing exclusively on technical aspects of energy efficiency, the research considered sustainability as a broader concept encompassing environmental awareness, responsible consumption, climate action, active citizenship, community participation, and behavioral change. This approach reflects contemporary European policy frameworks, including the European Green Deal, GreenComp: The European Sustainability Competence Framework, the Sustainable Development Goals, and Erasmus+ priorities on Environment and Climate Action.

The analytical framework was structured around five interconnected dimensions.

Policy Dimension

The first dimension focused on the analysis of European and national policy frameworks related to sustainability, climate action, environmental education, and energy efficiency. This dimension aimed to identify strategic priorities, policy objectives, and educational directions relevant to the project.

Educational Dimension

The second dimension examined educational approaches, learning methodologies, competence frameworks, and training opportunities related to sustainability education. Particular attention was given to non-formal learning environments and youth work practices.



Behavioral Dimension

The third dimension explored attitudes, perceptions, and behaviors associated with sustainability and energy efficiency. This dimension was considered particularly important because sustainable development requires not only knowledge acquisition but also behavioral change and active participation.

Community and Participation Dimension

The fourth dimension focused on the role of community engagement, civic participation, and collective action in supporting sustainability transitions. The analysis recognized that environmental challenges require collaborative responses involving citizens, organizations, institutions, and local communities.

Innovation and Digitalisation Dimension

The fifth dimension examined the role of digital tools, innovative educational technologies, and online learning environments in supporting sustainability education and increasing access to environmental knowledge and learning opportunities.

Together, these five dimensions provided a comprehensive analytical structure for examining sustainability education from multiple perspectives and ensuring that the research findings reflected the complexity of contemporary sustainability challenges.

Research Questions

To guide the research process, several key research questions were developed:

- What is the current state of sustainability and energy efficiency education within the European Union and the partner countries?
- What educational needs do youth workers and young people have regarding sustainability and energy efficiency?
- Which barriers and challenges affect the integration of sustainability topics within youth work activities?
- What educational methodologies and approaches are most effective in promoting sustainability awareness and behavioral change?
- Which good practices can be identified and adapted for use within youth work and non-formal learning environments?
- How can sustainability-related educational content be categorised to support the development of structured learning resources and digital educational tools?



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3.2 State-of-the-Art Analysis Across the EU and Partner Countries :

3.2.1 Analytical Approach

The state-of-the-art analysis was undertaken to establish a comprehensive understanding of the current landscape of sustainability and energy efficiency education across the European Union and the three partner countries participating in the FEEL GREEN project, namely Greece, Slovakia, and Luxembourg. The analysis was designed to identify existing educational policies, strategic priorities, institutional initiatives, good practices, and research evidence that could inform the development of the FEEL GREEN educational framework, the E-Handbook of Good Practices, and the project's digital learning platform.

Rather than focusing exclusively on policy documents or academic publications, the analytical approach adopted a multi-source evidence methodology, integrating information from European policy frameworks, official institutional reports, national strategic documents, statistical datasets, and scientific literature. This approach enabled the consortium to obtain a holistic understanding of the current state of sustainability education while ensuring that the analysis reflected both policy developments and practical implementation across different educational contexts.

The analytical process followed a structured desk research methodology, combining qualitative document analysis with comparative policy review. Documentary evidence was systematically collected from authoritative European and international organizations, including the European Commission, the European Environment Agency (EEA), Eurostat, Eurydice, the Joint Research Centre (JRC), Cedefop, UNESCO, the Organization for Economic Co-operation and Development (OECD), and the International Energy Agency (IEA). These organizations were selected due to their recognized expertise in sustainability policy, education, climate action, energy efficiency, and skills development, as well as the reliability and comparability of the data they produce.

In parallel, country-specific evidence was collected for each partner country through the analysis of National Energy and Climate Plans (NECPs), national sustainability strategies, governmental policy documents, reports published by the Ministries of Education and the Ministries responsible for Environment and Energy, together with additional documentation produced by national agencies responsible for sustainability, environmental education, and climate action. This combination of European and national sources enabled the consortium to compare strategic priorities while identifying country-specific characteristics, strengths, and challenges.

To complement institutional documentation, the review incorporated recent peer-reviewed scientific literature addressing sustainability education, energy literacy, environmental behavior, youth participation, non-formal learning, green competences, and behavioral change. Scientific publications were primarily selected from internationally recognized databases such as Scopus and Web of Science, with preference given to studies published between 2020 and 2025 in order to ensure that the analysis reflected the most recent developments in sustainability education and energy efficiency research. Where appropriate, earlier landmark publications were also considered when they provided important theoretical or conceptual foundations.



The documentary review was further supported by the analysis of European statistical indicators and survey data. Evidence from Eurostat, Eurobarometer, and other European monitoring mechanisms was examined to provide quantitative insights into sustainability awareness, environmental attitudes, participation in education and training, lifelong learning, and youth engagement in sustainability-related activities. The integration of statistical evidence strengthened the analytical process by complementing qualitative findings with measurable indicators describing current European trends. To ensure consistency throughout the comparative analysis, all documentary sources were examined using a common analytical framework consisting of six thematic dimensions.

The first dimension examined the policy and strategic framework supporting sustainability education and energy efficiency at both European and national levels. Particular attention was given to legislative developments, national action plans, educational reforms, and strategic priorities that influence sustainability learning. The second dimension focused on sustainability and energy efficiency education, analyzing the extent to which environmental sustainability has been integrated into educational systems, training programs, non-formal learning initiatives, and youth work practices.

The third dimension explored youth participation and civic engagement in sustainability-related activities. This included initiatives promoting environmental awareness, climate action, community participation, and active citizenship among young people. The fourth dimension examined the availability of educational resources, training opportunities, and capacity-building initiatives designed to support educators, trainers, and youth workers in delivering sustainability-related learning activities.

The fifth dimension analyzed the use of digital technologies, online learning platforms, educational toolkits, and innovative teaching approaches that facilitate sustainability education and increase accessibility to learning opportunities. Finally, the sixth dimension focused on identifying existing gaps, barriers, and emerging needs across the European Union and the partner countries. Particular emphasis was placed on challenges related to the availability of structured educational materials addressing energy efficiency within non-formal education settings, the preparedness of youth workers to deliver sustainability education, and the accessibility of practical learning resources specifically designed for young people.

The comparative nature of the analysis enabled the identification of both common European trends and country-specific characteristics. Rather than evaluating national performance, the purpose of the analysis was to identify transferable practices, recognize areas requiring further educational support, and establish an evidence base for the development of the FEEL GREEN educational resources. Consequently, similarities and differences between partner countries were interpreted as opportunities for mutual learning, knowledge exchange, and the dissemination of successful educational.

The findings of the state-of-the-art analysis constitute one of the principal evidence bases of the FEEL GREEN project. Together with the literature review, stakeholder consultation, and survey findings presented in the following sections, they informed the identification of educational priorities, the categorization of sustainability themes, the selection of good practices, and the design of the educational content incorporated into both the FEEL GREEN E-Handbook and the project's digital learning platform.

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3.2.2 European Landscape of Sustainability and Energy Efficiency Education

The European policy landscape concerning sustainability and energy efficiency education has evolved considerably over the last decade, reflecting the increasing recognition that education is a fundamental enabler of the green transition. While earlier European initiatives primarily focused on environmental protection and climate mitigation, recent policy developments have progressively adopted a broader perspective that positions education as a strategic instrument for developing sustainability competences, promoting behavioral change, and supporting citizens' active participation in achieving the European Union's climate and environmental objectives.

The state-of-the-art analysis conducted for the FEEL GREEN project demonstrates that sustainability education has moved beyond the boundaries of traditional environmental education and has become an integral component of European education, training, youth, employment, and climate policies. This evolution is evident across multiple policy domains, including the European Green Deal, GreenComp, the Council Recommendation on Learning for Environmental Sustainability, the European Education Area, the European Skills Agenda, and the Erasmus+ Program. Collectively, these initiatives reflect a common understanding that sustainability should be embedded across educational systems rather than treated as a standalone subject.

The review of recent European policy documents indicates that considerable progress has been achieved in establishing a common strategic vision for sustainability education. Most Member States have introduced national reforms intended to strengthen environmental education, integrate sustainability into school curricula, and promote climate awareness among learners. However, the implementation of these reforms remains uneven, with significant differences observed in curriculum design, teacher preparedness, institutional support, and the availability of educational resources across European education systems.

One of the most significant findings emerging from the Education and Training Monitor 2024 concerns the gradual transition from knowledge-based environmental education towards competence-oriented sustainability learning. The report emphasizes that contemporary educational approaches increasingly prioritize interdisciplinary learning experiences that enable learners to understand the complexity of sustainability challenges, critically evaluate environmental issues, and develop the capacity to act responsibly within their communities. This pedagogical shift closely reflects the competence-based philosophy introduced through GreenComp and demonstrates the European Union's broader commitment to preparing citizens for the social, economic, and environmental transformations associated with the green transition.

Despite these positive developments, the available evidence also reveals important structural limitations. The Education and Training Monitor highlights that learning for sustainability is still frequently dependent upon the initiative of individual schools or teachers rather than being systematically embedded within educational systems. Although sustainability themes are increasingly included within national curricula, their depth, consistency, and interdisciplinary integration vary considerably across Member States. Furthermore, several sustainability competences—particularly those related to futures literacy, systems thinking, and transformative action—remain only partially represented within existing educational programs.



An additional challenge identified through the literature concerns the relationship between sustainability knowledge and behavioral change. While European surveys indicate that young people generally demonstrate high levels of environmental awareness and express strong support for sustainability values, significantly fewer report translating this awareness into everyday sustainable behaviors. The Education and Training Monitor notes that approximately 83.6% of young people recognize the importance of adopting environmentally responsible lifestyles, yet only 29.8% report regularly engaging in sustainability-oriented actions. This discrepancy suggests that educational systems have been relatively successful in increasing awareness but remain less effective in supporting learners to transform knowledge into meaningful action.

The Eurydice comparative analysis further demonstrates that European education systems increasingly recognize sustainability as a cross-curricular priority. Rather than introducing sustainability as an isolated subject, most countries have adopted transversal approaches that integrate environmental themes across multiple disciplines, including science, geography, citizenship education, economics, technology, and social studies. Such interdisciplinary approaches are consistent with the understanding that sustainability challenges extend beyond environmental issues and require learners to consider economic, social, cultural, and ethical dimensions simultaneously. Nevertheless, the report also identifies considerable variation regarding implementation, particularly with respect to teacher training, whole-school approaches, and institutional support mechanisms.

Another important finding concerns the role of educators and youth professionals in facilitating sustainability learning. European reports consistently acknowledge that the successful implementation of sustainability education depends not only on curriculum reform but also on the preparedness of those responsible for delivering educational activities. Although many Member States have introduced guidance documents, teaching materials, and professional development opportunities, systematic capacity-building remains uneven across Europe. In several educational systems, teachers and youth workers continue to report insufficient access to specialized training, practical methodologies, and evidence-based educational resources capable of supporting high-quality sustainability education.

Digitalization has emerged as another defining characteristic of the current European landscape. Increasing investment in digital learning environments, open educational resources, online platforms, and interactive teaching methodologies has expanded opportunities for sustainability education beyond traditional classroom settings. Digital technologies enable learners to access up-to-date scientific information, participate in collaborative learning experiences, and engage with sustainability challenges through simulations, virtual laboratories, serious games, and project-based activities. Nevertheless, the review also indicates that the availability and quality of digital sustainability resources remain uneven across countries and educational sectors, particularly within non-formal education and youth work.

The analysis also highlights the growing importance of non-formal education within European sustainability strategies. While formal education continues to play a central role in developing foundational sustainability knowledge, European institutions increasingly recognize that youth organizations, civil society organizations, and community-based learning initiatives provide complementary learning environments capable of strengthening participation, environmental engagement, and behavioral change. This recognition is particularly evident within Erasmus+, GreenComp, and the Council Recommendation on Learning for Environmental Sustainability, all of which emphasize learner-centered methodologies, experiential learning, community participation, and active citizenship as essential components of sustainability education.



From an energy efficiency perspective, the review demonstrates that the topic is increasingly incorporated into broader sustainability education rather than being addressed as a distinct educational field. Educational initiatives frequently connect energy efficiency with responsible consumption, climate change mitigation, renewable energy, circular economy principles, and sustainable lifestyles. While this integrated approach reflects the interconnected nature of sustainability challenges, it also reveals an important gap: relatively few educational resources specifically address energy efficiency through structured learning pathways designed for youth workers and non-formal education practitioners. This finding is particularly relevant for the FEEL GREEN project, whose primary objective is to strengthen educational capacity in precisely this area.

Overall, the state-of-the-art analysis demonstrates that Europe has established a robust policy framework supporting sustainability education and has made substantial progress in integrating sustainability within educational systems. However, significant implementation challenges remain. Differences in national educational approaches, unequal access to specialized training, limited availability of practical educational resources, and the persistent gap between sustainability awareness and behavioral change indicate that further investment is required to translate policy ambitions into effective educational practice. These findings provide a strong justification for the FEEL GREEN project, which seeks to bridge the gap between European sustainability policies and their practical implementation by developing research-based educational resources, evidence-informed methodologies, and digital learning tools specifically tailored to the needs of youth workers and young people.

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3.2.3 State of Play in Greece

Greece has progressively strengthened its policy framework for sustainability and environmental education over the past three decades, particularly following the country's alignment with European environmental legislation and climate policies. Although environmental education was formally introduced into the national education system during the early 1990s, recent European policy developments, including the European Green Deal, the European Climate Law, the Sustainable Development Goals, and the GreenComp framework, have significantly accelerated national efforts to integrate sustainability into educational policy and practice.

The current national policy landscape demonstrates a clear commitment to supporting the green transition through education. Greece's updated National Energy and Climate Plan (NECP) identifies education, public awareness, citizen engagement, and behavioral change as important enabling conditions for achieving the country's energy efficiency and climate objectives. Alongside investments in renewable energy, energy efficiency, and decarbonization, the national strategy recognizes that long-term success depends upon improving environmental literacy and encouraging more sustainable behaviors among citizens.

Within the formal education system, sustainability education has gradually evolved from voluntary environmental projects towards a more integrated educational approach. According to the Eurydice comparative analysis, sustainability themes are increasingly incorporated across different curriculum areas rather than being taught as a separate subject. Environmental protection, climate change, biodiversity, responsible consumption, sustainable development, and active citizenship are now addressed through interdisciplinary learning activities that encourage students to connect scientific knowledge with societal and environmental challenges.

Nevertheless, the implementation of sustainability education remains characterized by considerable variability between schools. While national curriculum reforms increasingly support interdisciplinary sustainability learning, much of the practical implementation continues to depend on the initiative, experience, and professional commitment of individual teachers and school leaders. The Eurydice report further indicates that teacher support mechanisms and professional development opportunities related specifically to sustainability remain under continuous development, suggesting that implementation capacity is still evolving.

A distinctive characteristic of the Greek educational landscape is the long-standing tradition of environmental education structures operating outside the conventional classroom environment. Since the 1990s, Greece has established an extensive network of Environmental Education Centers, which in recent years have evolved into Centers for Education for the Environment and Sustainability (KEPEA). These centers provide experiential learning programs, outdoor education activities, teacher training seminars, and community engagement initiatives, contributing significantly to the promotion of environmental awareness and sustainability competences at regional and local levels.

In parallel, non-formal education has become increasingly important in promoting sustainability awareness among young people. Universities, non-governmental organizations, municipalities, environmental organizations, and European cooperation projects have developed a wide range of initiatives addressing climate change, circular economy, biodiversity conservation, responsible consumption, and energy efficiency. Many of these initiatives employ participatory methodologies, project-based learning, community volunteering, and experiential education, reflecting contemporary European approaches to sustainability learning.





Despite these positive developments, the analysis also identifies several structural challenges that continue to affect the effectiveness of sustainability education in Greece. One of the most significant challenges concerns the limited availability of structured educational resources specifically addressing energy efficiency within youth work and non-formal education settings. Existing educational initiatives frequently address sustainability from a broad environmental perspective, while practical educational material focusing specifically on energy-efficient behaviors, household energy consumption, sustainable energy choices, and behavioral change remains comparatively limited.

A second challenge relates to the professional development of educators and youth workers. Although environmental education has been progressively incorporated into educational policy, opportunities for specialized training in sustainability competences, energy literacy, and innovative educational methodologies remain unevenly distributed. Consequently, many educators continue to rely on self-developed materials or project-specific resources rather than comprehensive evidence-based educational frameworks. The review also indicates increasing political commitment to strengthening sustainability within education. Recent curriculum reforms have introduced stronger references to active citizenship, sustainable development, and the United Nations Sustainable Development Goals, while digital transformation initiatives have expanded access to digital educational resources and innovative teaching approaches. These developments create favorable conditions for integrating sustainability education more systematically across different educational contexts.

From the perspective of the FEEL GREEN project, the Greek context presents both significant opportunities and clearly identifiable educational needs. The existence of supportive policy frameworks, established environmental education structures, and increasing institutional commitment provides a strong foundation for sustainability learning. At the same time, the limited availability of specialized educational resources focusing on energy efficiency for youth workers, together with the need for additional capacity-building and practical methodologies, demonstrates a clear opportunity for the FEEL GREEN project to contribute meaningful educational added value.

Overall, the state-of-the-art analysis suggests that Greece has established a solid institutional basis for sustainability education and has made substantial progress in aligning national educational policies with European priorities. However, the transition from policy commitments to systematic educational practice remains an ongoing process. Strengthening the practical implementation of energy efficiency education, expanding professional development opportunities for youth workers, and increasing the availability of evidence-based educational resources represent key priorities for supporting the country's contribution to the European green transition.

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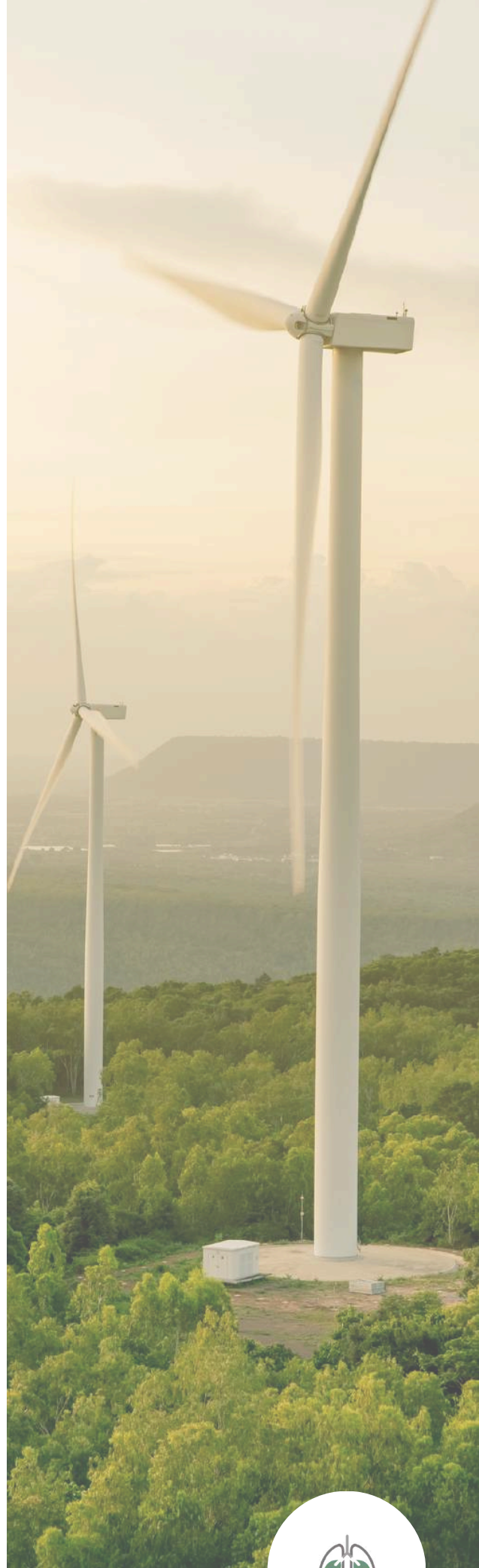
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3.2.4 State of Play in Slovakia

Slovakia has significantly strengthened its sustainability and climate policies over the last decade, particularly following the implementation of the European Green Deal and the increasing alignment of national strategies with European climate and energy objectives. Environmental sustainability, energy efficiency, and climate resilience are now recognized as strategic priorities within national development planning, while education is increasingly viewed as an essential mechanism for supporting the country's long-term green transition. Although sustainability education has historically focused on environmental protection and nature conservation, recent reforms have gradually expanded its scope to include climate change, sustainable development, responsible resource management, and environmental citizenship.

The updated Slovak National Energy and Climate Plan (NECP) identifies public awareness, education, innovation, and workforce development as key enabling factors for achieving national climate neutrality and energy efficiency objectives. Alongside investments in renewable energy technologies, building renovation, and industrial decarbonization, the strategy recognizes that long-term policy success depends upon increasing environmental literacy and promoting sustainable behavioral change among citizens. Consequently, education is positioned as an important cross-sectoral instrument supporting both climate policy implementation and social adaptation to the green transition.

Within the formal education system, sustainability education has undergone gradual curricular development. According to the Eurydice comparative analysis, sustainability themes are incorporated across multiple curriculum areas through interdisciplinary learning rather than being delivered as a stand-alone subject. Environmental protection, biodiversity, sustainable development, climate change, and responsible citizenship are integrated into subjects such as natural sciences, geography, civic education, and technology, reflecting the European recommendation that sustainability should be embedded across the curriculum rather than confined to individual disciplines.

Recent educational reforms have further reinforced this direction. Slovakia is currently implementing a comprehensive curriculum reform intended to modernize teaching approaches, strengthen competence-based learning, and improve educational quality. Although these reforms are broader than sustainability education alone, they create favorable conditions for embedding sustainability competences, systems thinking, critical thinking, and interdisciplinary learning within the national curriculum. The reforms are also supported through substantial European funding aimed at improving educational quality and reducing inequalities within the education system.

Nevertheless, evidence suggests that implementation remains uneven. While sustainability is increasingly reflected within curriculum documents, the practical integration of sustainability learning continues to vary considerably between schools. Similar to trends observed across Europe, successful implementation often depends upon the initiative of individual teachers, school leadership, and local educational communities rather than systematic institutional support. Furthermore, opportunities for specialized professional development focusing specifically on sustainability competences remain under continuous development.



A notable strength of the Slovak context lies within the field of environmental education outside the formal school system. The Slovak Environmental Agency plays a central role in promoting Education for Sustainable Development (ESD) through accredited teacher training programs, educational campaigns, environmental awareness initiatives, and methodological support. Environmental education is further strengthened through collaboration between governmental institutions and civil society organizations, creating opportunities for educators to enhance their professional competences in sustainability-related fields. Teachers who complete accredited environmental education programs are eligible for professional recognition and financial incentives, reflecting the institutional value attached to sustainability education.

The non-formal education sector has become increasingly active in promoting sustainability and environmental citizenship among young people. Numerous civil society organizations, environmental networks, and youth associations organize educational activities addressing climate change, biodiversity conservation, sustainable lifestyles, volunteering, and community participation. The national network Špirála brings together environmental education organizations across Slovakia and facilitates cooperation, knowledge exchange, and the dissemination of educational resources. At the governmental level, recent initiatives have also sought to strengthen cooperation between public authorities and civil society organizations in order to connect formal and non-formal education around sustainability, democratic participation, volunteerism, and active citizenship.

Despite these positive developments, several structural challenges remain. One of the principal issues concerns the limited availability of comprehensive educational resources specifically addressing energy efficiency within youth work and non-formal education. Existing initiatives frequently address sustainability from a broad environmental perspective, whereas structured educational material focusing on household energy efficiency, energy literacy, behavioral change, and practical energy-saving practices remains comparatively limited. This observation is consistent with broader European findings indicating that energy efficiency education is often integrated into wider sustainability topics rather than developed as a dedicated educational field.

A further challenge relates to educational investment and capacity-building. International analyses indicate that Slovakia continues to face structural challenges regarding educational expenditure, teacher support, and educational outcomes compared with many other European countries. Although substantial reforms are currently underway, ensuring that teachers and youth workers receive systematic training in sustainability education remains an important priority for the coming years. Strengthening professional development opportunities will be essential for translating national sustainability policies into effective educational practice.

The review also demonstrates increasing political commitment to integrating sustainability into lifelong learning and youth participation. Recent initiatives place growing emphasis on cooperation between ministries, schools, local authorities, and civil society organizations in order to strengthen environmental awareness, democratic participation, and community engagement among young people. These developments indicate that Slovakia is progressively moving towards a more comprehensive understanding of sustainability education that extends beyond environmental knowledge to include civic responsibility and active participation in sustainable development.





From the perspective of the FEEL GREEN project, Slovakia presents favorable institutional conditions for strengthening sustainability education while simultaneously revealing important educational needs. The country has established a supportive policy framework, active environmental institutions, and a growing network of non-formal education providers. However, the analysis identifies a continuing need for specialized educational resources focusing specifically on energy efficiency, together with practical methodologies capable of supporting youth workers in delivering evidence-based sustainability education. Addressing these gaps represents a significant opportunity for the FEEL GREEN project to contribute to national capacity-building while complementing existing educational initiatives.

Overall, the state-of-the-art analysis indicates that Slovakia has made considerable progress in aligning its education and climate policies with European sustainability priorities. Nevertheless, the transition from strategic policy commitments to consistent educational implementation remains an ongoing process. Continued investment in teacher and youth worker training, the development of practical educational resources, and the systematic integration of energy efficiency into non-formal learning environments will be important for strengthening Slovakia's contribution to the European green transition.

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3.2.5 State of Play in Luxembourg

Luxembourg has established one of the most comprehensive national approaches to sustainability and climate governance within the European Union, integrating environmental protection, energy transition, education, and citizen participation into a coherent strategic framework. Although the country is relatively small in terms of population and geographical size, it has positioned sustainability as a central component of national development policy, recognizing education as a fundamental driver of behavioral change, social innovation, and long-term climate resilience. This integrated approach reflects Luxembourg's commitment to implementing the objectives of the European Green Deal, the European Climate Law, the 2030 Agenda for Sustainable Development, and the National Energy and Climate Plan (NECP). The national policy framework places particular emphasis on developing environmental awareness from an early age while promoting lifelong learning opportunities that enable citizens to actively contribute to the green transition.

The updated National Energy and Climate Plan identifies education, public awareness, innovation, and citizen engagement as essential enabling conditions for achieving Luxembourg's ambitious climate and energy targets. Alongside investments in renewable energy, sustainable mobility, circular economy initiatives, and energy-efficient buildings, the national strategy recognizes that technological innovation alone is insufficient to achieve climate neutrality. Instead, the transition requires citizens who possess the knowledge, competences, and motivation necessary to adopt sustainable lifestyles and participate actively in environmental decision-making. Consequently, sustainability education is regarded as an integral component of national climate policy rather than solely an educational objective.

Within the formal education system, sustainability has progressively evolved into a cross-curricular priority. According to the Eurydice comparative analysis, environmental sustainability is integrated across multiple subject areas, encouraging interdisciplinary learning that connects environmental, economic, social, and cultural dimensions of sustainable development. Rather than focusing exclusively on ecological knowledge, the curriculum promotes critical thinking, systems thinking, responsible citizenship, and collaborative problem-solving, reflecting the competence-oriented philosophy embedded within GreenComp and other contemporary European educational frameworks.



Luxembourg has also adopted a whole-school approach to sustainability education. Schools are encouraged to incorporate sustainability not only into classroom teaching but also into school governance, infrastructure management, student participation, and relationships with local communities. Environmental responsibility is therefore treated as a shared institutional value that influences organizational culture, decision-making processes, and everyday school practices. This holistic approach is supported by national guidance documents, pedagogical resources, and professional development opportunities that assist teachers in integrating sustainability into teaching and learning activities.

Teacher education and continuous professional development constitute another notable strength of the Luxembourgish educational system. National education authorities provide educators with access to specialized training programs, methodological guidance, digital educational resources, and pedagogical tools designed to facilitate sustainability education across different educational levels. According to the Eurydice report, Luxembourg is among the European countries that have developed structured mechanisms to support educators in implementing sustainability-related learning, thereby reducing reliance on individual teacher initiative and strengthening consistency across educational settings.

Beyond formal education, Luxembourg demonstrates a particularly strong commitment to non-formal and lifelong learning. Sustainability education is actively promoted through cooperation between governmental institutions, municipalities, civil society organizations, research institutions, and specialized agencies working in the fields of climate action and energy efficiency. This collaborative governance model enables educational initiatives to extend beyond schools, creating opportunities for citizens of all ages to participate in environmental awareness campaigns, community projects, and lifelong learning activities.

One of the country's most significant institutional actors is Klima-Agence, the national agency responsible for supporting the implementation of Luxembourg's energy transition policies. Through educational campaigns, technical guidance, advisory services, and awareness-raising initiatives, the agency promotes energy efficiency, renewable energy, sustainable construction, and environmentally responsible behavior among households, municipalities, businesses, and educational institutions. The agency also develops educational materials and practical tools that facilitate public understanding of energy-related issues, contributing significantly to national sustainability awareness.

In parallel, several national initiatives encourage schools, municipalities, and youth organizations to participate in sustainability networks and environmental certification programs. These initiatives promote practical engagement with topics such as climate adaptation, biodiversity conservation, sustainable mobility, waste reduction, circular economy, and responsible consumption. The strong cooperation between education providers, local authorities, and environmental organizations reflects Luxembourg's emphasis on participatory governance and community-based sustainability education.

Despite these significant strengths, the state-of-the-art analysis also identifies several challenges that remain relevant within the Luxembourgish context. As in many European countries, sustainability education encompasses a broad range of environmental topics, while educational resources specifically dedicated to energy efficiency within non-formal youth work remain comparatively limited. Energy-related learning is frequently embedded within wider sustainability programs rather than being addressed through structured educational pathways focusing specifically on behavioral change, household energy literacy, and practical energy management.



Furthermore, the country's multicultural and multilingual educational environment presents additional pedagogical considerations. Educational resources frequently need to be adapted across multiple languages and cultural contexts in order to ensure accessibility and effective participation among diverse learner groups. While Luxembourg has developed substantial institutional capacity to address these challenges, maintaining inclusive and culturally responsive sustainability education remains an ongoing priority.

From the perspective of the FEEL GREEN project, Luxembourg represents an example of good institutional practice regarding the governance of sustainability education and cross-sectoral cooperation. The country's integrated approach demonstrates how education, environmental policy, and community engagement can operate synergistically to support national climate objectives. At the same time, the analysis confirms that opportunities remain for strengthening educational resources specifically addressing energy efficiency within youth work and non-formal education. Consequently, the methodologies, educational materials, and digital learning tools developed through FEEL GREEN have the potential to complement existing national initiatives by providing practical, evidence-based resources specifically designed for youth workers and young people.

Overall, the Luxembourgish experience illustrates a mature and well-coordinated approach to sustainability education characterized by strong institutional collaboration, comprehensive policy integration, and significant investment in educational capacity. Nevertheless, similar to other European countries, continued efforts are required to strengthen specialized educational resources focusing on energy efficiency, expand practical learning opportunities within non-formal education, and further support behavioral change among young people. These findings reinforce the relevance of the FEEL GREEN project as a complementary European initiative capable of supporting existing national strategies while addressing educational needs that remain common across partner countries.

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3.2.6 Comparative Analysis and Research Gaps

The comparative state-of-the-art analysis demonstrates that all three partner countries have made substantial progress in aligning their national sustainability and education policies with the broader objectives of the European Union. European policy frameworks, including the European Green Deal, GreenComp, the Council Recommendation on Learning for Environmental Sustainability, the Sustainable Development Goals, and the Erasmus+ Program, have significantly influenced national educational reforms and sustainability strategies across Greece, Slovakia, and Luxembourg. Consequently, sustainability education has evolved from a relatively specialized field of environmental education into a broader educational priority encompassing climate action, responsible citizenship, energy efficiency, and sustainable development.

Despite this common policy direction, the comparative analysis reveals important differences in the way sustainability education is organized, implemented, and supported across the three partner countries. These differences primarily concern institutional governance, educational infrastructure, professional development opportunities, and the availability of specialized educational resources.

Greece demonstrates a long-established tradition of environmental education, supported by decades of experience in project-based learning and the extensive network of Centers for Education for the Environment and Sustainability (KEPEA). This historical foundation has contributed significantly to the integration of environmental awareness within formal education and has encouraged strong collaboration between schools, local communities, and environmental organizations. Nevertheless, the analysis indicates that sustainability education continues to depend considerably on local initiatives and individual educator engagement. Structured educational resources specifically addressing energy efficiency within youth work remain comparatively limited, while professional development opportunities for youth workers vary substantially across different regions.

Slovakia presents a somewhat different educational landscape. Rather than relying primarily on historical environmental education structures, recent national reforms have focused on strengthening competence-based education and modernizing sustainability learning through curriculum reform and institutional capacity building. The Slovak Environmental Agency and national environmental education networks have played an important role in promoting Education for Sustainable Development and supporting cooperation between governmental institutions and civil society organizations. However, despite this institutional progress, the analysis indicates that educational implementation remains uneven and that additional investment is required to strengthen practical methodologies, specialized educational resources, and systematic training opportunities for educators and youth workers.

Luxembourg represents a more integrated governance model in which sustainability education is embedded within broader national climate and education strategies. Strong coordination between ministries, municipalities, educational institutions, specialized agencies, and civil society organizations has enabled the development of comprehensive educational initiatives supporting environmental awareness, climate action, and lifelong learning. Structured professional development opportunities, digital educational resources, and cross-sectoral cooperation contribute to a highly supportive institutional environment. Nevertheless, even within this advanced governance framework, educational material specifically addressing energy efficiency in non-formal youth work remains relatively limited, suggesting that specialized educational resources continue to represent an area for further development. Although the three countries differ in terms of institutional organization and implementation mechanisms, the comparative analysis identifies several common trends that characterize the current European landscape of sustainability education.





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Firstly, sustainability has become a cross-cutting educational priority rather than an isolated environmental topic. Across all partner countries, environmental sustainability is increasingly integrated into multiple curriculum areas and educational initiatives through interdisciplinary learning approaches that connect environmental, economic, and social dimensions of sustainable development. This reflects the broader European transition from knowledge-based environmental education towards competence-oriented sustainability learning.

Secondly, all three countries increasingly recognize the strategic importance of non-formal education in supporting sustainability competences and active citizenship. Youth organizations, civil society organizations, municipalities, environmental agencies, and European cooperation projects have become important contributors to sustainability education, complementing the work undertaken within formal educational institutions. Experiential learning, community participation, volunteering, project-based learning, and learner-centered educational methodologies are consistently identified as effective approaches for promoting sustainability awareness and behavioral change among young people.

Thirdly, digitalization is progressively transforming sustainability education across Europe. Online learning environments, digital educational resources, interactive learning platforms, and open educational materials have expanded opportunities for environmental learning and facilitated wider access to sustainability-related knowledge. However, the analysis indicates that digital educational resources specifically addressing energy efficiency within youth work remain fragmented and unevenly distributed across the partner countries.

Alongside these positive developments, the comparative analysis also identifies several common research and educational gaps that remain insufficiently addressed despite the existence of comprehensive policy frameworks. The first and perhaps most significant gap concerns the limited availability of structured educational resources dedicated specifically to energy efficiency within non-formal education. Although sustainability education has expanded considerably, energy efficiency is frequently incorporated as one component of broader environmental education programs rather than being addressed through comprehensive educational pathways capable of supporting behavioral change and practical decision-making.

A second gap relates to the professional development of youth workers. While teachers increasingly benefit from curriculum guidance, institutional support, and professional development programs, educational opportunities specifically designed for youth workers remain comparatively limited. Across all partner countries, youth workers frequently rely on self-developed materials, isolated project outputs, or general sustainability resources that may not adequately address the practical requirements of non-formal learning environments.



The third gap concerns the relationship between sustainability awareness and behavioral change. European evidence consistently demonstrates that environmental awareness among young people has increased substantially over recent years. Nevertheless, transforming awareness into long-term sustainable behavior remains a significant educational challenge. Existing educational initiatives often succeed in increasing knowledge but are less successful in developing practical competences that enable learners to adopt sustainable lifestyles and actively contribute to energy efficiency within their communities.

Finally, the analysis reveals a need for greater integration between scientific knowledge, educational practice, and community engagement. Although numerous policy documents, educational initiatives, and environmental programs exist across Europe, these resources often remain fragmented and dispersed across different institutions and sectors. Consequently, educators and youth workers may encounter difficulties identifying evidence-based methodologies and practical educational materials that can be readily applied within everyday learning activities.

The findings of the comparative analysis provide a clear justification for the development of the FEEL GREEN project. Rather than duplicating existing sustainability initiatives, FEEL GREEN addresses several of the educational gaps identified through the state-of-the-art review. The project contributes to strengthening sustainability education by providing evidence-based educational resources, promoting energy efficiency as a distinct educational theme, supporting the professional development of youth workers, identifying transferable good practices, and developing a digital learning platform that facilitates access to practical educational content.

Furthermore, the comparative analysis demonstrates that each partner country contributes complementary expertise to the consortium. Greece provides extensive experience in environmental education and experiential learning. Slovakia contributes valuable institutional knowledge in Education for Sustainable Development and competence-based educational reform. While Luxembourg offers examples of integrated governance and cross-sectoral cooperation linking education, climate policy, and citizen engagement.



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The combination of these complementary strengths creates favorable conditions for mutual learning and enhances the European added value of the FEEL GREEN project. Overall, the state-of-the-art analysis confirms that Europe has established a strong policy foundation for sustainability education. However, translating strategic objectives into effective educational practice continues to require targeted educational resources, strengthened capacity-building, interdisciplinary methodologies, and greater emphasis on practical energy efficiency education within youth work. Addressing these needs represents the principal contribution of the FEEL GREEN project and provides the foundation upon which the subsequent research activities, educational materials, and digital learning resources have been developed.

Dimension	Greece	Slovakia	Luxembourg	Common European Gap
Policy Framework	Strong alignment with EU policies	Strong alignment with EU policies	Highly integrated governance	Policies are more advanced than implementation
Formal Sustainability Education	Well-established environmental education tradition	Curriculum reform strengthening sustainability competences	Whole-school sustainability approach	Uneven implementation across education systems
Non-formal Education	Active NGO and KEPEA network	Strong Environmental Agency and NGO cooperation	Extensive cross-sectoral cooperation	Fragmented educational resources for youth work

Dimension	Greece	Slovakia	Luxembourg	Common European Gap
Energy Efficiency Education	Limited specialized resources	Limited specialized resources	Mainly integrated within broader sustainability programs	Lack of structured energy-efficiency learning pathways
Professional Development	Uneven training opportunities	Capacity-building under development	Structured teacher support. fewer youth worker resources	Need for specialized training for youth workers
Digital Educational Resources	Growing availability	Developing digital initiatives	Advanced digital support mechanisms	Fragmented and project-based resources
Behavioral Change	High awareness. implementation challenges	High awareness. implementation challenges	High awareness. implementation challenges	Gap between awareness and everyday sustainable behavior

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3.3 Literature Review and Scientific Sources

The development of the FEEL GREEN E-Handbook was supported not only by the analysis of European and national policy documents but also by a comprehensive review of the contemporary scientific literature related to sustainability education, energy efficiency, environmental behavior, and non-formal learning. The literature review was conducted to establish a robust theoretical foundation for the research activity, identify internationally recognized educational approaches, and ensure that the project's educational methodology reflects current scientific knowledge and evidence-based practices.

The review primarily examined peer-reviewed publications published between 2020 and 2025, while selected earlier studies were also considered where they represented seminal contributions to the fields of environmental education, behavioral change, and sustainability competences. Scientific publications were retrieved mainly from internationally recognized academic databases, including Scopus and Web of Science, while complementary searches were conducted through Google Scholar to identify additional high-impact publications and recent review articles. The literature search focused on keywords including sustainability education, energy literacy, energy efficiency education, environmental education, green competences, behavioral change, non-formal learning, youth work, climate education, and Education for Sustainable Development (ESD).

The scientific literature consistently highlights that sustainability education has undergone a substantial transformation over the last two decades. Earlier educational approaches were primarily centered on increasing environmental knowledge and awareness, whereas contemporary research increasingly supports competence-based educational models that enable learners to critically analyze sustainability challenges, collaborate with others, and actively participate in creating sustainable solutions. This shift is reflected in numerous studies that emphasize systems thinking, critical thinking, futures literacy, and action-oriented learning as essential competences for addressing contemporary environmental challenges.

A second major theme emerging from the literature concerns energy literacy, which has become an increasingly important area of sustainability research. Studies consistently demonstrate that improving knowledge about energy consumption alone does not automatically result in more sustainable behavior. Instead, effective energy efficiency education combines conceptual understanding with practical experience, behavioral reflection, and opportunities for learners to apply sustainable practices in their everyday lives. Consequently, many researchers argue that educational programs should move beyond information provision and instead support learners in developing practical decision-making skills related to energy use and resource management.

The literature further emphasizes the importance of non-formal education and youth work in promoting sustainability competences. Numerous studies indicate that experiential learning, project-based activities, peer learning, community engagement, outdoor education, and participatory educational methods significantly enhance learners' motivation and contribute to long-term behavioral change. These learner-centered approaches are considered particularly effective when addressing complex sustainability challenges, as they encourage active participation, collaboration, and personal responsibility rather than passive knowledge acquisition.



Another recurring finding concerns the relationship between sustainability education and behavioral change. Research consistently demonstrates that awareness alone is insufficient to produce lasting changes in behavior. Educational interventions are considerably more effective when learners actively participate in authentic learning experiences, reflect upon their own behaviors, collaborate with their communities, and engage in practical sustainability actions. This perspective aligns closely with contemporary competence-based educational frameworks and supports the integration of experiential methodologies within sustainability education.

The literature also identifies digital learning as an increasingly important component of sustainability education. Online learning environments, digital educational resources, interactive platforms, and blended learning approaches have expanded opportunities for environmental education by increasing accessibility, encouraging collaboration, and facilitating learner engagement. At the same time, several studies underline that digital technologies should complement rather than replace experiential and community-based learning, particularly within non-formal education settings where interaction and participation remain central elements of the learning process.

Overall, the scientific literature demonstrates broad consensus regarding several key principles that informed the development of the FEEL GREEN project. Sustainability education should adopt competence-based rather than knowledge-centered approaches. energy efficiency education should encourage practical behavioral change. non-formal learning methodologies should actively engage learners through participation and experience. and digital technologies should be used to strengthen accessibility, collaboration, and lifelong learning opportunities. These conclusions provided the scientific foundation for the research methodology, the educational framework, the identification of good practices, and the design of the FEEL GREEN educational resources and digital learning platform.

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3.4 Online Survey Methodology

To complement the documentary analysis and literature review presented in the previous sections, the FEEL GREEN consortium conducted an online survey to collect primary data regarding current educational practices, sustainability awareness, energy efficiency knowledge, and training needs among young people and professionals involved in youth work and non-formal education. The survey constituted one of the principal empirical research activities of the project and was designed to provide evidence directly from stakeholders working with young people across the partner countries.

The online survey was developed collaboratively by the project consortium using Google Forms as the data collection platform. The questionnaire was administered in English to ensure consistency across all participating countries and to facilitate the comparative analysis of responses. A common research instrument was used by all partners, guaranteeing that participants responded to identical questions under the same methodological conditions.

The primary target group consisted of professionals actively engaged in youth education and non-formal learning. Participants included youth workers, trainers, teachers, educators, representatives of non-governmental organizations, youth organizations, municipalities, environmental organizations, researchers, and other professionals involved in the design or implementation of educational activities for young people. Although the research primarily focused on professionals working with youth, individuals with a demonstrated interest in sustainability and environmental education were also invited to participate where relevant to the objectives of the study.

A total of 60 participants took part in the survey, with 20 respondents recruited from each partner country (Greece, Slovakia and Luxembourg). Participants were selected through purposive sampling, as the objective was to gather informed perspectives from stakeholders possessing relevant experience in youth work, sustainability education, environmental awareness, or community engagement. The relatively balanced distribution of respondents across the three partner countries ensured the comparability of findings while providing insight into both common European trends and country-specific perspectives.

The questionnaire consisted of 18 structured questions organized into five thematic sections. The first section collected background information regarding respondents' professional profiles, organizational affiliation, and years of experience. The second section explored participants' knowledge of sustainability concepts, energy efficiency, and their confidence in addressing these topics within youth work. The third section examined current educational practices, including the implementation of sustainability-related activities, the educational methods employed, and the availability of energy efficiency educational resources within organizations. The fourth section investigated perceived training needs, implementation barriers, and preferred educational resources, while the final section included an open-ended question inviting participants to provide recommendations for strengthening sustainability and energy efficiency education for youth workers.





The questionnaire combined different question formats in order to capture both quantitative and qualitative information. Closed-ended questions primarily employed five-point Likert scales to measure participants' perceptions, levels of agreement, and self-assessed knowledge. Multiple-choice and multiple-response questions were used to identify existing educational practices, priority topics, barriers, and resource needs. Finally, one open-ended question allowed respondents to express additional views and recommendations, providing qualitative insights that complemented the quantitative findings.

The survey instrument was specifically designed to align with the research objectives of the FEEL GREEN project and the analytical framework presented in Chapter 3.1. Each thematic section corresponded to one or more research dimensions, including sustainability awareness, current educational practices, professional capacity, training needs, and future educational priorities. This alignment ensured that the primary data collected through the survey directly supported the identification of educational gaps and informed the subsequent development of the FEEL GREEN E-Handbook, educational materials, and digital learning platform.

Particular attention was given to ensuring the clarity, accessibility, and practical relevance of the questionnaire. Questions were formulated using clear and concise language suitable for professionals from different educational and organizational backgrounds. The estimated completion time of approximately eight to ten minutes was considered appropriate for encouraging participation while maintaining respondent engagement and minimizing survey fatigue.

Overall, the online survey provided an important source of empirical evidence complementing the documentary analysis and scientific literature reviewed in the previous sections. Together with the comparative policy analysis and literature review, the survey findings contributed to a comprehensive understanding of the educational needs, existing practices, and capacity-building priorities related to sustainability and energy efficiency within youth work across the partner countries.

3.5 Research Quality, Ethical Considerations and Data Reliability

Ensuring the quality, credibility, and ethical integrity of the research process constituted a fundamental principle throughout the development of the FEEL GREEN research activity. The methodological design was guided by internationally recognized research standards to ensure that the data collected were reliable, comparable, and suitable for supporting the development of the project's educational resources.

To maximize methodological consistency, a single research instrument was developed collaboratively by the project consortium and administered uniformly across all participating countries. All respondents completed the same online questionnaire in English using identical question wording, response scales, and survey structure. This standardized approach minimized potential variations in data collection procedures and enhanced the comparability of responses between Greece, Slovakia, and Luxembourg.

Particular attention was given to the quality of the questionnaire design. The survey was intentionally structured using clear, concise, and unambiguous language appropriate for professionals working in youth education and non-formal learning. Questions were organized into logically connected thematic sections addressing sustainability awareness, current educational practices, training needs, implementation challenges, and future educational priorities. The combination of Likert-scale items, multiple-choice questions, and one open-ended question enabled the collection of both quantitative and qualitative data, providing a balanced representation of participants' experiences and perceptions.

Ethical principles were applied throughout the research process. Participation in the survey was entirely voluntary, and respondents were informed about the purpose of the research before completing the questionnaire. No personally identifiable information was collected, ensuring participants' anonymity and protecting their privacy. All responses were treated confidentially and analyzed exclusively in aggregated form for the purposes of the FEEL GREEN project. The research process was conducted in accordance with the fundamental principles of the General Data Protection Regulation (GDPR) and respected the ethical standards commonly applied in educational and social research.





To strengthen data reliability, the consortium adopted a consistent sampling approach across all partner countries by collecting responses from an equal number of participants representing comparable stakeholder groups. The inclusion of youth workers, educators, trainers, NGO representatives, researchers, and professionals involved in youth-related educational activities ensured that the findings reflected informed professional perspectives directly relevant to the objectives of the project. Furthermore, the use of a common questionnaire facilitated the identification of both shared European trends and country-specific educational needs.

Although the survey was not intended to produce statistically representative findings for the wider European population, it was designed to generate robust evidence capable of informing the educational development process of the FEEL GREEN project. The combination of documentary analysis, scientific literature review, and primary data collection through the online survey provided methodological triangulation, increasing the credibility and trustworthiness of the overall research findings. This integrated research approach ensured that the development of the FEEL GREEN E-

Handbook, educational materials, and digital learning platform was grounded in both scientific evidence and the practical experiences of professionals working in the field of youth education.

* The questionnaire included both single-response and multiple-response questions. For multiple-response questions, respondents were allowed to select more than one option. therefore, percentages reported in the findings represent the proportion of respondents selecting each option and do not sum to 100%.

4. Survey Findings and Educational Needs Assessment

Following the completion of the documentary analysis, literature review, and comparative assessment of the partner countries, the FEEL GREEN consortium proceeded with the collection of primary data through the online survey described in Chapter 3. The purpose of this phase was to validate the findings emerging from the desk research while capturing the perspectives, experiences, and educational needs of professionals actively involved in youth work and non-formal education.

The survey generated valuable empirical evidence regarding participants' sustainability awareness, current educational practices, confidence in addressing sustainability-related topics, perceived barriers, and future training priorities. Beyond providing descriptive information, the findings enabled the consortium to identify common educational needs shared across the three partner countries, as well as several country-specific characteristics that further informed the development of the FEEL GREEN educational framework.

The following sections present the survey findings organized according to the principal research dimensions investigated through the questionnaire. Where appropriate, comparative observations between Greece, Slovakia, and Luxembourg are also presented to highlight common trends and national particularities.



4.1 Sustainability Awareness Among Participants

Developing effective sustainability education requires a comprehensive understanding of the existing knowledge, awareness and confidence of those involved in youth work. Before identifying educational priorities and designing targeted learning resources, it is essential to assess how professionals and young people perceive their own understanding of sustainability and energy efficiency concepts. For this reason, the first part of the survey examined respondents' self-assessed knowledge of sustainability, their familiarity with energy efficiency practices, their confidence in communicating these topics to young people, and the sustainability themes with which they were most familiar. Together, these findings establish the baseline upon which the educational framework of the FEEL GREEN project was developed.

Survey Results

Question 5 (Q5) invited respondents to assess their overall knowledge of sustainability concepts using a five-point Likert scale. As presented in Table 4.1, the largest proportion of respondents evaluated their knowledge as High (45%), while 22% considered it Very High. At the same time, one-fifth of respondents reported only Moderate knowledge, and a smaller proportion assessed their knowledge as Low or Very Low. Overall, the findings suggest that participants possess a satisfactory foundation of sustainability knowledge, although important differences in self-perceived competence remain across the sample.

Table 4.1. Results of Q5 – Overall Knowledge of Sustainability Concepts

Response	Overall
Very Low.	3%
Low.	10%
Moderate.	20%
High	45%
Very High.	22%

A closer examination of the country-level results revealed moderate differences among the partner countries. Respondents from Luxembourg generally reported higher levels of self-assessed knowledge, while participants from Greece and Slovakia displayed a broader distribution across the five response categories, reflecting greater variation in prior experience and educational background.

Question 6 (Q6) explored respondents' familiarity with energy efficiency practices. Compared to the previous question, the results indicate a noticeably lower level of confidence in this more specialized field. The largest proportion of respondents (32%) described themselves as Familiar, while 27% indicated only Moderate familiarity. Only 15% considered themselves Very Familiar with energy efficiency practices, whereas approximately one-quarter of respondents reported either slight or no familiarity with the topic.



Table 4.2. Results of Q6 – Familiarity with Energy Efficiency Practices

Response.	Overall
Not Familiar at All.	8%
Slightly Familiar.	18%
Moderately Familiar	27%
Familiar	32%
Very Familiar	15%

These findings indicate that although many respondents are acquainted with the basic principles of energy efficiency, specialized knowledge remains unevenly distributed across the target group.

Question 7 (Q7) investigated respondents' confidence in explaining sustainability and energy efficiency topics to young people. The results demonstrate that participants generally expressed moderate levels of pedagogical confidence. While 37% reported feeling Confident, only 15% considered themselves Very Confident in facilitating educational activities on these topics. Conversely, 28% selected the Moderately Confident option, suggesting that many respondents feel capable of introducing sustainability concepts but would welcome additional methodological support when addressing more specialized themes.

Table 4.3. Results of Q7 – Confidence in Delivering Sustainability and Energy Efficiency Education

Finally, Question 8 (Q8) explored the sustainability topics with which respondents felt most familiar. As this was a multiple-response question, participants were able to select more than one thematic area. Climate Change emerged as the most frequently selected topic (72%), followed by Sustainable Consumption (68%) and Waste Reduction (64%). Circular Economy and Biodiversity were also relatively well represented. In contrast, Energy Efficiency (45%) and Renewable Energy (43%) received substantially lower response rates, suggesting that respondents are generally more familiar with broader environmental themes than with the technical dimensions of sustainable development.

Table 4.4. Results of Q8 – Sustainability Topics with the Highest Familiarity

Sustainability Topic	Respondents Selecting the Option
Climate Change	72%
Sustainable Consumption	68%
Waste Reduction	64%
Biodiversity	58%
Circular Economy	55%
Green Entrepreneurship	48%
Energy Efficiency	45%
Renewable Energy	43%
Sustainable Mobility	40%
Active Citizenship	38%

Interpretation of the Findings

The findings indicate that respondents possess a solid but not comprehensive foundation of sustainability knowledge. General sustainability concepts appear to be reasonably well understood across the sample, reflecting the growing visibility of environmental issues within education, public policy and youth work over recent years. Nevertheless, the survey also demonstrates that this knowledge becomes less consistent when respondents are asked to assess their familiarity with more specialized aspects of sustainability.

A clear distinction emerges between respondents' understanding of broad environmental concepts and their familiarity with energy efficiency, which represents the central thematic focus of the FEEL GREEN project. While most participants reported satisfactory knowledge of sustainability in general, considerably fewer described themselves as highly familiar with energy efficiency practices. This finding suggests that awareness of sustainability does not necessarily translate into specialized knowledge of energy-related topics.

A similar pattern is evident in relation to pedagogical confidence. Although relatively few respondents reported having little confidence in discussing sustainability issues, only a limited proportion considered themselves very confident in delivering sustainability and energy efficiency education. Most participants positioned themselves within the middle of the confidence scale, indicating that additional methodological support and professional development could substantially strengthen their capacity to facilitate learning in this field. The responses to Question 8 reinforce these observations. Participants demonstrated greater familiarity with widely recognized sustainability themes, such as climate change, sustainable consumption and waste reduction, whereas more specialized topics—including energy efficiency and renewable energy—received considerably lower levels of recognition. Overall, the findings suggest that respondents possess a broad environmental awareness but comparatively less experience with the practical and technical dimensions of sustainability education.

Relationship with the State-of-the-Art Analysis

The survey findings closely support the conclusions presented in the State-of-the-Art Analysis (Section 3.2). The documentary research demonstrated that sustainability has become increasingly embedded within European educational policies and youth work initiatives, contributing to a growing level of environmental awareness among professionals and young people alike. The generally positive levels of sustainability knowledge observed in the survey are therefore consistent with the broader policy developments identified across the three partner countries.

At the same time, the empirical findings confirm one of the principal challenges highlighted during the documentary analysis: the limited development of specialized educational capacity in the field of energy efficiency. Across Greece, Slovakia and Luxembourg, the State-of-the-Art Analysis identified a shortage of dedicated educational resources, practical methodologies and targeted training opportunities addressing energy efficiency within non-formal education. The comparatively lower levels of familiarity and pedagogical confidence recorded in Questions 6 and 7 provide empirical confirmation of these observations.

The country-level trends similarly reflect the profiles identified through the documentary research. Respondents from Luxembourg reported somewhat stronger knowledge and confidence, corresponding to the country's more established sustainability and digital education framework.



-United Nations Sustainable Development Goals

The Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 as part of the 2030 Agenda for Sustainable Development. The seventeen goals provide a global framework for addressing major social, economic, and environmental challenges while promoting sustainable and inclusive development.

Several SDGs are particularly relevant to the FEEL GREEN project, including:

- SDG 4: Quality Education
- SDG 7: Affordable and Clean Energy
- SDG 11: Sustainable Cities and Communities
- SDG 12: Responsible Consumption and Production
- SDG 13: Climate Action
- SDG 17: Partnerships for the Goals

The SDGs help youth workers connect local educational activities with broader global challenges and demonstrate how individual and community actions contribute to sustainable development. They also provide a useful framework for designing projects, defining learning objectives, measuring impact, and encouraging active citizenship.

For young people, the SDGs offer an accessible and inspiring vision of a more sustainable future, while for youth organisations they serve as a practical reference for planning, implementing, and evaluating sustainability-focused initiatives. By integrating the SDGs into educational activities, youth workers can help learners understand the interconnected nature of global challenges and their role in creating positive environmental and social change.

Greece demonstrated satisfactory awareness of sustainability but lower levels of specialized energy efficiency knowledge, reflecting the stronger emphasis placed on environmental awareness than on technical sustainability education. Slovakia presented a broader distribution of responses, supporting the earlier conclusion that additional professional development and structured educational support remain important priorities for youth workers operating within the national context.

Overall, the close correspondence between the documentary evidence and the survey findings

strengthens the validity of the research process and confirms that the educational needs identified through the primary research accurately reflect the wider European and national context examined in Chapter 3.

Key Implication for FEEL GREEN

The findings suggest that youth workers and other professionals engaged in youth education already possess a reasonable level of sustainability awareness. However, the survey clearly demonstrates that specialized knowledge, pedagogical confidence and familiarity with energy efficiency remain considerably less developed. These results provide a strong empirical rationale for the FEEL GREEN project, highlighting the need for practical educational resources, targeted capacity-building activities and accessible digital learning tools that support youth workers in translating general sustainability awareness into effective educational practice focused on energy efficiency.



Survey Results

The first question examined in this section (Q9) explored the frequency with which organizations implement sustainability-related educational activities. As presented in Table 4.5, the majority of respondents indicated that sustainability activities are implemented on a regular basis within their organizations. Overall, 67% of respondents reported that sustainability initiatives are organized regularly, while a further 23% stated that such activities are implemented occasionally. Only a small proportion reported that sustainability activities are organized rarely or not at all.

Table 4.5. Results of Q9 – Implementation of Sustainability Activities

Response	Greece	Slovakia	Luxembourg	Overall
Regularly	65%	55%	80%	67%
Occasionally	25%	30%	15%	23%
Rarely	8%	10%	5%	8%
Never	2%	5%	0%	2%

The second question (Q11) investigated the sustainability themes most frequently addressed within educational activities. Climate Change emerged as the dominant topic (80%), followed by Environmental Protection (78%), Sustainable Lifestyle (70%) and Circular Economy (68%). By contrast, Energy Efficiency was selected by 58% of respondents, while Renewable Energy was identified by 52%, indicating that these themes are incorporated less consistently within current educational practice.

Table 4.6. Results of Q11 – Sustainability Topics Addressed in Educational Activities

Sustainability Topic	Overall Responses
Climate Change	80%
Environmental Protection	78%
Sustainable Lifestyle	70%
Circular Economy	68%
Green Skills	62%
Energy Efficiency	58%
Renewable Energy	52%

Finally, respondents were asked whether their organizations currently use educational resources specifically related to energy efficiency (Q12). The findings reveal that fewer than half of participating organizations currently use dedicated educational materials in this field. Overall, 45% of respondents answered "Yes", 35% indicated that such resources are used only occasionally, while 20% reported that their organizations do not currently use specialized energy efficiency educational resources.

Response	Greece	35%	Luxembourg	Overall
Yes	40%	35%	60%	45%
Occasionally	40%	35%	30%	35%
No	20%	30%	10%	20%

Interpretation of the Findings

The survey findings demonstrate that sustainability has become a well-established component of organizational practice within youth work across the partner countries. The majority of participating organizations regularly implement educational activities addressing environmental sustainability, indicating that sustainability has moved beyond policy commitments and is increasingly reflected in day-to-day educational practice.

However, the analysis also reveals a clear imbalance regarding the thematic focus of these activities. While climate change, environmental protection and sustainable lifestyles dominate current educational programs, energy efficiency is addressed considerably less frequently. This finding suggests that many organizations continue to approach sustainability through broad environmental awareness rather than through specialized themes requiring more technical knowledge and practical educational resources.

Table 4.7. Results of Q12
– Use of Educational Resources on Energy Efficiency





The results of Q12 reinforce this conclusion. Despite the growing implementation of sustainability-related activities, fewer than half of participating organizations currently use educational materials specifically dedicated to energy efficiency. This indicates that the challenge no longer lies in encouraging organizations to engage with sustainability, but rather in equipping them with high-quality educational resources capable of addressing more specialized sustainability competences.

Relationship with the State-of-the-Art Analysis

The empirical findings strongly support the conclusions emerging from the State-of-the-Art Analysis presented in Chapter 3. Across Greece, Slovakia and Luxembourg, the documentary research identified a steady expansion of sustainability education within youth work, supported by European policies and national educational strategies. At the same time, the analysis highlighted a common gap concerning the availability of structured educational resources focusing specifically on energy efficiency.

The survey confirms this pattern. Luxembourg recorded the highest level of regular implementation of sustainability activities and the highest use of energy efficiency educational resources, reflecting its stronger institutional integration of sustainability education. Greece demonstrated active organizational engagement in environmental education, yet respondents reported lower levels of specialized energy efficiency resources, consistent with the national findings presented in the desk research. Slovakia similarly showed growing implementation of sustainability initiatives but the lowest level of dedicated educational resources, reinforcing the previously identified need for additional educational support and capacity building.

Overall, the close correspondence between the documentary evidence and the survey findings increases the robustness of the research and confirms that the educational priorities identified through the primary research accurately reflect the broader policy and educational landscape across the partner countries.

Key Implication for FEEL GREEN

Although sustainability has become an established priority within youth organizations across the partner countries, the survey demonstrates that educational activities remain primarily focused on general environmental themes. The comparatively limited use of specialized energy efficiency educational resources confirms the need for the FEEL GREEN project to develop structured, practice-oriented materials that strengthen the integration of energy efficiency into youth work and non-formal education.

4.3 Pedagogical Practices in Sustainability Education

The effectiveness of sustainability education depends not only on the topics addressed but also on the pedagogical approaches adopted by educators and youth workers. Contemporary European educational policies increasingly advocate learner-centered, participatory and experiential learning methodologies that encourage active engagement, critical thinking and behavioral change. Consequently, the survey explored the educational methods most frequently employed by organizations when delivering sustainability education to young people, providing valuable insights into current pedagogical practice across the partner countries.

Survey Results

Question 10 (Q10) investigated the educational methodologies currently used by professionals when implementing sustainability-related learning activities. Respondents were invited to select all methods regularly applied within their organizations. The results demonstrate a clear preference for participatory and experiential learning approaches, with interactive workshops emerging as the most frequently used educational method (82%), followed by project-based learning (75%), group discussions (72%) and experiential learning activities (68%). Outdoor learning (63%) and peer learning (60%) were also widely reported, while digital learning activities (55%), simulations and role-playing (42%), and study visits (38%) were implemented less frequently.

Table 4.7. Results of Q12 – Use of Educational Resources on Energy Efficiency

Educational Method	Overall Responses
Interactive Workshops	82%
Project-Based Learning	75%
Group Discussions	72%
Experiential Learning Activities	68%
Outdoor Learning	63%
Peer Learning	60%
Digital Learning Activities	55%
Simulations / Role Playing	42%
Study Visits / Field Visits	38%



A comparison between partner countries revealed relatively consistent pedagogical practices, although some differences were observed. Organizations in Luxembourg reported the highest use of digital learning activities and project-based learning, reflecting their greater integration of digital educational resources. Greek organizations demonstrated stronger implementation of outdoor learning and community-based environmental activities, while Slovak organizations reported widespread use of workshops and group discussions but comparatively lower adoption of digital methodologies.

Table 4.9. Comparative Overview of Selected Educational Methods Across Partner Countries

Educational Method	Greece	Slovakia	Luxembourg
Interactive Workshops	80%	75%	90%
Project-Based Learning	75%	68%	82%
Outdoor Learning	68%	55%	65%
Digital Learning Activities	50%	45%	70%



Interpretation of the Findings

The survey findings indicate that sustainability education within youth work is predominantly delivered through active and learner-centered pedagogical approaches rather than through traditional teacher-centered instruction. The widespread use of workshops, collaborative learning, project-based activities and experiential education suggests that professionals recognize sustainability competences as skills that are developed through participation, reflection and real-life application.

At the same time, the comparatively lower implementation of digital learning activities, simulations and study visits highlights opportunities for further pedagogical diversification. Although organizations increasingly acknowledge the value of digital education, many professionals continue to rely primarily on face-to-face methodologies. This finding suggests that digital tools are currently viewed as complementary rather than integral components of sustainability education.

The results also indicate that youth workers favor educational methods capable of promoting behavioral change rather than simply transmitting theoretical knowledge. Interactive activities encourage learners to analyze real-world sustainability challenges, collaborate in identifying solutions and apply newly acquired knowledge within their local communities. Such approaches are particularly relevant for promoting energy efficiency, where behavioral change constitutes one of the principal educational objectives.

Relationship with the State-of-the-Art Analysis

The survey findings strongly reinforce the conclusions emerging from the State-of-the-Art Analysis presented in Chapter 3. The documentary research highlighted that contemporary European sustainability education is increasingly influenced by participatory pedagogies promoted through GreenComp, UNESCO's Education for Sustainable Development framework, and the Erasmus+ Program. These policy frameworks consistently advocate experiential learning, collaborative problem-solving, learner participation and competence-based education as the most effective approaches for developing sustainability competences.



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The empirical evidence collected through the survey confirms that these pedagogical principles are already reflected in current educational practice across the partner countries. The widespread adoption of workshops, project-based learning and experiential activities demonstrates that youth organizations have largely embraced learner-centered educational approaches. Nevertheless, the findings also reveal that further support is required to strengthen the use of innovative digital methodologies and to enrich existing educational practices with structured learning resources specifically addressing energy efficiency.

The country-level findings are likewise consistent with the national profiles identified during the documentary research. Luxembourg demonstrates greater integration of digital educational methodologies, reflecting its stronger digital education ecosystem. Greece continues to build upon its established experience in environmental education through extensive use of community-based and outdoor learning activities. Slovakia, while demonstrating strong commitment to participatory education, reports comparatively lower methodological diversity, reinforcing the need for additional professional development opportunities and practical pedagogical resources.

Overall, the close alignment between the documentary analysis and the empirical survey findings provides additional evidence that current pedagogical practices across the partner countries are evolving in accordance with European educational priorities while simultaneously revealing specific areas where educational innovation remains necessary.

Key Implication for FEEL GREEN

The survey demonstrates that youth workers already favor participatory, experiential and learner-centered educational approaches when addressing sustainability topics. However, opportunities remain to strengthen methodological diversity, particularly through the integration of digital learning tools and structured educational resources focusing on energy efficiency. Consequently, the FEEL GREEN educational framework should build upon existing pedagogical practices while providing practical methodologies, ready-to-use learning activities and digital resources that further enhance the quality of sustainability education within youth work.

4.4 Readiness for Digital Learning and Educational Innovation

The increasing digitalization of education has significantly transformed the way learning resources are developed, accessed and delivered across Europe. Within the field of youth work, digital educational tools have become increasingly important in supporting flexible learning, knowledge sharing and the dissemination of innovative educational practices. Recognizing these developments, the survey explored both the types of educational resources considered most valuable by professionals working with young people and their willingness to integrate online learning platforms into their educational practice.

Survey Results

Question 16 (Q16) examined the educational resources that respondents considered most useful for supporting sustainability education. Participants were invited to select the types of resources they believed would have the greatest practical value in their daily work with young people. As illustrated in Table 4.10, practical handbooks emerged as the most frequently selected educational resource (88%), followed by interactive educational activities (82%), case studies (80%), online learning platforms (78%), and training workshops (72%). Video-based learning resources were selected less frequently (58%), suggesting that respondents prioritize interactive and practice-oriented educational materials over purely informational content.



Table 4.10. Results of Q16 – Preferred Educational Resource

Educational Resource	Overall Responses
Practical Handbook	88%
Interactive Learning Activities	82%
Case Studies	80%
Online Learning Platform	78%
Training Workshops	72%
Video Learning Resources	58%

Question 17 (Q17) investigated respondents' willingness to use an online platform dedicated to sustainability education for youth workers as part of their professional practice. The findings reveal a particularly positive attitude towards digital learning environments. Overall, 82% of respondents indicated that they were either Likely or Very Likely to use such a platform, while only a small minority expressed limited interest.

Table 4.11. Results of Q17 – Willingness to Use an Online Sustainability Education Platform

Unlikely	51%
Very Unlikely	40%
Likely	34%
Neutral	13%
Unlikely	4%
Very Unlikely	1%

The country-level analysis demonstrated only moderate variation. Respondents from Luxembourg expressed the highest willingness to incorporate online educational platforms into their professional activities, followed by Greece and Slovakia. Nevertheless, positive attitudes towards digital learning were consistently observed across all three partner countries, indicating broad recognition of the added value that digital educational resources can provide within youth work.



Table 4.12. Comparative Results of Q17 Across Partner Countries

Country	Likely / Very Likely
Greece	80%
Slovakia	75%
Luxembourg	90%
Overall	82%

Interpretation of the Findings

The survey findings demonstrate that professionals working with young people increasingly recognize the importance of high-quality educational resources that combine practical guidance with digital accessibility. Rather than expressing interest in theoretical reference materials alone, respondents clearly prioritized resources capable of supporting everyday educational practice, including practical handbooks, interactive activities, case studies and digital learning environments.

The particularly high level of acceptance regarding online learning platforms indicates that digital education is no longer perceived as an alternative to face-to-face learning but rather as a complementary educational environment capable of extending learning opportunities beyond traditional training settings. Respondents appear to value digital platforms primarily as repositories of practical educational materials, opportunities for self-directed professional development, and spaces for exchanging educational practices and resources.

The findings also suggest that the increasing digital readiness observed among youth workers creates favorable conditions for the integration of blended learning approaches within sustainability education. While traditional participatory methodologies remain central to non-formal education, digital platforms are increasingly viewed as effective mechanisms for supporting continuous learning, facilitating access to educational content and strengthening professional collaboration.



Relationship with the State-of-the-Art Analysis

The empirical findings closely correspond with the conclusions of the State-of-the-Art Analysis presented in Chapter 3. The documentary research identified the growing importance of digital learning environments within European education policy, particularly through initiatives promoting digital transformation, open educational resources and competence-based learning. At the same time, the analysis highlighted the limited availability of specialized digital educational resources dedicated specifically to energy efficiency within youth work.

The survey findings strongly reinforce these observations. Respondents consistently identified practical digital resources among their highest educational priorities and demonstrated considerable willingness to integrate online learning platforms into their professional practice. This suggests that the challenge no longer concerns the acceptance of digital education itself, but rather the availability of high-quality, evidence-based digital resources specifically designed for professionals working with young people.

The country-level findings similarly reflect the national characteristics identified during the documentary research. Luxembourg reported the highest readiness for digital learning, reflecting its more mature digital education ecosystem. Greece demonstrated strong interest in combining traditional educational practices with digital resources, while Slovakia reported similarly positive attitudes despite identifying a greater need for additional training and methodological support. Overall, the findings indicate that digital readiness is evident across all participating countries, although differences remain regarding the availability and integration of digital educational resources.

The strong convergence between the documentary evidence and the survey findings further validates the overall research process and confirms that digital educational innovation represents an important opportunity for strengthening sustainability education within youth work.

Key Implication for FEEL GREEN

The survey demonstrates that youth workers are highly receptive to integrating digital educational resources into their professional practice, particularly when these resources are practical, interactive and directly applicable within non-formal education. The strong demand for online learning platforms, case studies and structured educational materials confirms the relevance of developing the FEEL GREEN digital platform as an accessible learning environment that complements existing face-to-face educational activities and supports the continuous professional development of youth workers.

4.5 Capacity-Building Needs, Implementation Barriers and Future Educational Priorities

Following the analysis of current knowledge, organizational practices, pedagogical approaches and digital readiness, the final stage of the survey sought to identify the remaining educational needs and challenges experienced by professionals working with young people. Particular emphasis was placed on respondents' perceived need for additional training, the barriers affecting the implementation of sustainability education, the thematic areas requiring further educational development, and recommendations for strengthening sustainability and energy efficiency education within youth work. Collectively, these findings provide the empirical basis for identifying the priority areas that should guide the development of future educational resources and capacity-building initiatives.





Survey Results

Question 13 (Q13) examined respondents' perceptions regarding their need for additional training in sustainability and energy efficiency education. The findings indicate a strong demand for further professional development. Overall, 80% of respondents either Agreed or Strongly Agreed that additional training would enhance their ability to deliver sustainability education, while only a small proportion expressed disagreement.

Table 4.13. Results of Q13 – Need for Additional Training

Response	Overall
Strongly Agree	45%
Agree	35%
Neutral	12%
Disagree	6%
Strongly Disagree	2%

Question 14 (Q14) explored the principal barriers affecting the implementation of sustainability education within respondents' organizations. As this was a multiple-response question, participants were able to identify more than one challenge. The results demonstrate that the most significant obstacle concerns the lack of educational materials, selected by 82% of respondents, followed closely by the lack of training opportunities (78%). Financial limitations (65%) and limited organizational capacity (58%) were also frequently reported, while lack of institutional support, limited time and participant engagement were identified less frequently.

Table 4.14. Results of Q14 – Main Barriers to Implementing Sustainability Education

Barrier	Respondents Selecting the Option
Lack of educational materials	82%
Lack of training	78%
Lack of funding	65%
Limited organisational capacity	58%
Lack of institutional support	48%
Lack of time	45%
Limited participant engagement	40%

Question 15 (Q15) investigated the sustainability topics for which respondents considered additional educational resources to be most necessary. The results reveal a particularly strong demand for educational materials addressing Energy Efficiency (88%), followed by Green Skills (80%), Sustainable Behavior (78%), Climate Change (75%) and Circular Economy (72%). Renewable Energy, Digital Sustainability, Community Participation and Environmental Citizenship were also recognized as important areas requiring further educational support.

Table 4.15. Results of Q15 – Sustainability Topics Requiring Additional Educational Resources

Educational Topic	Respondents Selecting the
Energy Efficiency	88%
Green Skills	80%
Sustainable Behavior	78%
Climate Change	75%
Circular Economy	72%
Renewable Energy	68%
Digital Sustainability	65%
Community Participation	62%
Environmental Citizenship	58%

Finally, Question 18 (Q18) invited respondents to provide recommendations regarding the future development of sustainability and energy efficiency education for youth workers. A thematic analysis of the responses revealed four recurring priorities. Participants consistently emphasized the need for more practical educational resources, continuous professional training opportunities, greater availability of digital educational tools, and increased exchange of good practices between youth organizations. These recommendations demonstrate that respondents view sustainability education as a continuous professional development process requiring both methodological support and access to high-quality educational resources.

Interpretation of the Findings

The survey findings demonstrate that professionals working with young people recognize sustainability education as an increasingly important component of their professional practice while simultaneously acknowledging significant limitations in their current capacity to deliver specialized educational activities. The particularly high proportion of respondents requesting additional training indicates that existing knowledge and experience are considered insufficient for addressing the growing complexity of sustainability and energy efficiency education.

The analysis of implementation barriers further illustrates that the principal challenges are not associated with a lack of motivation or institutional commitment, but rather with limited access to appropriate educational resources and professional development opportunities. Respondents consistently identified practical educational materials and specialized training as the two most pressing needs, suggesting that strengthening educational capacity requires investment in both learning resources and human capital.

The findings of Q15 reinforce this conclusion. Energy Efficiency emerged as the educational topic requiring the greatest level of additional support, significantly exceeding all other thematic areas. This observation is particularly noteworthy, as it confirms that respondents perceive energy efficiency as a specialized field requiring further educational development despite demonstrating relatively high levels of general sustainability awareness in previous sections of the survey.

The thematic analysis of respondents' recommendations similarly reflects a strong preference for practical, application-oriented educational support. Rather than requesting additional theoretical information, participants consistently emphasized the importance of accessible methodologies, ready-to-use educational resources, digital learning opportunities and collaboration between organizations. Collectively, these findings suggest that future capacity-building initiatives should prioritize practical competence development rather than knowledge acquisition alone.

Relationship with the State-of-the-Art Analysis

The empirical findings presented in this section closely confirm the conclusions of the State-of-the-Art Analysis discussed in Chapter 3. The documentary research identified several common challenges across Greece, Slovakia and Luxembourg, including the limited availability of specialized educational resources on energy efficiency, the need for continuous professional development of youth workers, and the growing demand for innovative digital learning solutions capable of supporting sustainability education.

The survey findings demonstrate remarkable consistency with these observations. Respondents across all partner countries expressed a clear need for additional training, highlighted the shortage of practical educational materials and identified energy efficiency as the thematic area requiring the greatest educational investment. These findings indicate that the educational gaps identified through the documentary analysis are also experienced directly by professionals working within the field of youth work.



Country-level trends similarly reflect the characteristics identified during the desk research. Luxembourg, despite demonstrating comparatively stronger institutional capacity throughout the previous sections of the survey, continued to express demand for specialized educational resources addressing energy efficiency. Greece reported a strong need for practical educational materials capable of supporting the implementation of sustainability education within non-formal learning environments, while respondents from Slovakia consistently highlighted the importance of additional training and institutional capacity building. These findings suggest that although the intensity of educational needs varies slightly between countries, the overall priorities remain highly consistent across the consortium.

Overall, the convergence between documentary evidence and empirical survey findings considerably strengthens the reliability of the research and confirms that the educational priorities identified through the survey accurately reflect the broader challenges currently affecting sustainability education within European youth work.

Key Implication for FEEL GREEN

The survey demonstrates that youth workers do not primarily require greater awareness of sustainability, but rather greater capacity to translate sustainability principles into effective educational practice. The strong demand for specialized training, practical educational materials, digital learning resources and methodologies focusing on energy efficiency confirms the strategic relevance of the FEEL GREEN project. These findings provide the empirical justification for the educational framework presented in the following chapter, ensuring that the proposed learning categories respond directly to the needs identified through the research.

4.6 Key Educational Priorities Emerging from the Research

The combined analysis of the documentary research, the comparative assessment of the partner countries and the empirical survey findings provides a comprehensive understanding of the current state of sustainability and energy efficiency education within youth work. Rather than considering the results of the desk research and the primary research as separate sources of evidence, the FEEL GREEN research methodology sought to integrate both perspectives in order to identify the educational priorities that should guide the development of future learning resources and capacity-building initiatives.

Across all stages of the research, a high level of consistency emerged between the conclusions of the State-of-the-Art Analysis and the experiences reported by survey participants. The documentary review demonstrated that sustainability has become an increasingly important priority within European education policy, youth work and non-formal learning. Similarly, respondents participating in the survey recognized sustainability education as an essential component of their professional practice and acknowledged its growing importance for supporting young people's environmental awareness and active participation in the green transition.

At the same time, the research consistently revealed that the integration of sustainability into youth work has not yet been accompanied by an equivalent level of specialized educational support. While broad sustainability concepts are increasingly embedded within educational activities, more specific themes related to energy efficiency, behavioral change and practical environmental action remain comparatively underdeveloped. The findings therefore suggest that future educational initiatives should move beyond raising awareness and increasingly focus on developing practical competences that enable young people to adopt more sustainable behaviors in their everyday lives.



The research also demonstrated that professionals working with young people increasingly favor participatory, learner-centered and experience-based educational approaches. Interactive workshops, collaborative learning activities and project-based methodologies were consistently identified as preferred educational practices, reflecting the pedagogical principles promoted by contemporary European competence frameworks such as GreenComp and Education for Sustainable Development. Nevertheless, respondents also highlighted the need for additional methodological guidance capable of translating these pedagogical principles into practical educational activities that can be implemented within non-formal learning environments.

Another important conclusion concerns the growing role of digital education within youth work. Both the documentary analysis and the survey findings indicate that digital educational resources are increasingly perceived as valuable complements to face-to-face learning rather than replacements for traditional educational practice. Participants expressed a clear interest in practical digital learning environments that provide accessible educational materials, interactive learning opportunities and flexible professional development pathways. This finding further reinforces the importance of integrating digital educational solutions into future sustainability education initiatives.

The research additionally identified several structural challenges affecting the implementation of sustainability education across the partner countries. Limited access to specialized educational materials, insufficient professional training opportunities and restricted organizational capacity emerged as common challenges regardless of national context. Although the intensity of these challenges varies between countries, the overall pattern remained remarkably consistent throughout both the documentary analysis and the empirical research. This convergence suggests that many of the identified educational needs reflect broader European trends rather than isolated national circumstances.

Taken together, these findings indicate that the future development of sustainability education for youth workers should be guided by a coherent educational framework that combines scientific knowledge, practical learning methodologies and accessible educational resources. Rather than focusing exclusively on environmental awareness, future educational interventions should support the development of applied competences, encourage behavioral change and strengthen the ability of youth workers to facilitate meaningful sustainability learning experiences.



Based on the overall research process, six key educational priorities emerged as the foundation for the educational framework developed within the FEEL GREEN project:

- Strengthening knowledge and practical competences related to energy efficiency, enabling youth workers to confidently address one of the most underrepresented yet strategically important dimensions of sustainability education.
- Promoting sustainable lifestyles and responsible consumption, encouraging behavioral change through practical, everyday actions that young people can realistically adopt within their communities.
- Supporting climate awareness through action-oriented learning, moving beyond theoretical understanding towards active participation, problem-solving and community engagement.
- Integrating circular economy principles into non-formal education, helping young people understand resource efficiency, waste reduction and sustainable production and consumption patterns.
- Encouraging active citizenship and community participation, recognising that sustainability challenges require collaborative responses and stronger civic engagement at local level.
- Expanding the use of digital educational tools and innovative learning resources, ensuring that youth workers have continuous access to practical materials, interactive learning opportunities and flexible professional development.

These educational priorities directly informed the design of the thematic structure presented in the following chapter of the handbook. Consequently, the educational categories developed within the FEEL GREEN framework are not theoretical constructs but evidence-based learning priorities derived from both the comparative policy analysis and the empirical needs assessment conducted throughout the project.





5. Educational Categories for Sustainability Learning Framework

The previous chapters presented the findings of both the documentary research and the empirical needs assessment conducted among youth workers, educators, institutional representatives and young people across the partner countries. The combined analysis provided a comprehensive understanding of the current state of sustainability education, highlighting existing strengths, identifying educational gaps and revealing the priority areas requiring additional methodological support and educational resources.

Building upon these findings, this chapter translates the research evidence into a structured educational framework for sustainability learning. Rather than presenting sustainability as a collection of isolated environmental topics, the FEEL GREEN framework organizes the identified educational needs into a coherent set of thematic learning categories that reflect both contemporary European sustainability priorities and the practical requirements expressed by professionals working with young people.

Each educational category presented in this chapter has been developed directly from the conclusions of the State-of-the-Art Analysis and the needs assessment carried out through the online survey. Consequently, the proposed framework is evidence-based, ensuring that the educational content responds to real learning needs rather than theoretical assumptions. Together, these categories provide youth workers with a structured methodological foundation for designing, facilitating and evaluating sustainability education activities within non-formal learning environments.

The educational categories presented in the following sections are intended to support the development of sustainability competences through practical learning, learner-centered pedagogies and experiential educational approaches. Collectively, they form the educational backbone of the FEEL GREEN project and establish the conceptual structure upon which the project's educational materials and digital learning platform have been developed.

5.1 Energy Efficiency Practices

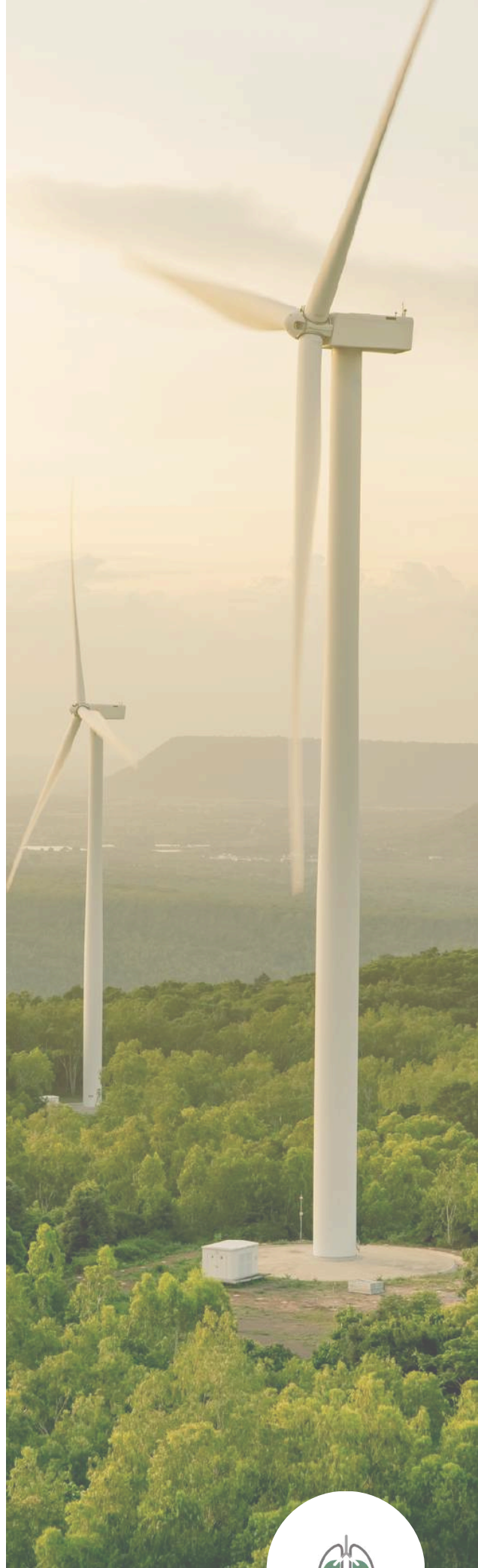
Why this Educational Category?

Energy Efficiency Practices constitute the central educational category of the FEEL GREEN framework and represent the thematic area from which the project derives its primary educational focus. The inclusion of this category is directly supported by both the documentary research conducted across the partner countries and the empirical findings obtained through the online survey.

The State-of-the-Art Analysis demonstrated that, although sustainability education has become increasingly integrated into youth work throughout Europe, educational initiatives continue to place greater emphasis on broad environmental awareness than on practical energy efficiency competences. Across Greece, Slovakia and Luxembourg, the analysis identified a limited availability of structured educational resources specifically addressing energy efficiency, together with an increasing policy emphasis on reducing energy consumption, promoting responsible resource management and supporting the transition towards climate neutrality.

These findings were further confirmed by the survey results. While participants generally reported satisfactory levels of sustainability awareness, they expressed comparatively lower familiarity with energy efficiency practices and identified this topic as one of the areas requiring additional educational resources and professional development. The research therefore highlighted a clear educational gap between understanding sustainability as a general concept and possessing the practical competences necessary to promote energy-efficient behavior among young people.

For these reasons, Energy Efficiency Practices were identified as the first and most fundamental educational category of the FEEL GREEN framework. Rather than approaching energy efficiency exclusively from a technical perspective, the educational framework encourages youth workers to present energy efficiency as a practical life competence closely connected with everyday decision-making, responsible consumption and environmental citizenship.





Learning Objectives

Upon completing this educational category, youth workers should be able to:

- explain the concept of energy efficiency and distinguish it from energy conservation and renewable energy.
- recognize the relationship between everyday energy use, climate change and sustainable development.
- identify practical opportunities for improving energy efficiency within households, educational environments and local communities.
- encourage young people to adopt energy-efficient behaviors through experiential and participatory learning activities.
- facilitate discussions that promote critical thinking regarding energy consumption and sustainable lifestyles.
- integrate energy efficiency concepts into non-formal education activities using learner-centered methodologies.

Core Knowledge Areas

This educational category introduces the fundamental concepts required for understanding energy efficiency within everyday life. Rather than providing highly technical information, the content focuses on practical knowledge that youth workers can easily translate into educational activities suitable for young people.

The core knowledge areas include:

Energy Use in Everyday Life

- Understanding how energy is consumed in daily activities.
- Major sources of household and community energy consumption.
- The relationship between energy demand and environmental sustainability.

Buildings and Indoor Energy Efficiency

- Efficient lighting and appliances.
- Heating and cooling practices.
- Everyday actions that reduce unnecessary energy consumption.

Sustainable Transport

- Comparing different transport options from an energy perspective.
- Promoting active mobility and public transport.
- Understanding transport-related emissions.

Household Energy Management

- Practical energy-saving behaviors.
- Responsible use of electrical appliances.
- Developing sustainable daily routines.

Behavioral Change and Energy Awareness

- How individual behavior influences energy consumption.
- Small actions with long-term environmental impact.
- Encouraging positive habits among young people.



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Competences to be Developed

In line with the GreenComp – European Sustainability Competence Framework, this educational category contributes to the development of knowledge, skills and attitudes that support sustainable behavior and responsible decision-making.

Knowledge

Youth workers should develop an understanding of:

- the principles of energy efficiency.
- the relationship between energy consumption and climate change.
- sustainable resource management
- practical measures that improve energy performance in everyday settings.

Skills

Youth workers should be able to:

- analyze everyday situations from an energy efficiency perspective
- facilitate discussions on sustainable energy use
- design simple educational activities promoting energy-efficient behavior
- encourage collaborative problem-solving related to energy challenges
- support young people in identifying realistic energy-saving solutions within their own communities.

Attitudes

Youth workers are encouraged to foster:

- responsibility towards sustainable energy use.
- openness to behavioral change
- critical reflection regarding consumption habits.
- willingness to promote environmentally responsible lifestyles.
- commitment to continuous learning within sustainability education.

Suggested Educational Approaches

Considering the findings of the research, participatory and experiential learning methodologies are recommended for delivering this educational category.

Examples of appropriate educational approaches include:

- Energy Audit Simulation – participants evaluate the energy performance of a classroom, youth center or community building and identify opportunities for improvement.
- Household Energy Challenge – learners monitor everyday energy consumption over a short period and collectively discuss practical energy-saving strategies.
- Role-Play Activities – participants assume different stakeholder roles (citizens, local authorities, businesses, environmental organizations) to explore alternative solutions to local energy challenges.
- Community Energy Mapping – young people identify examples of sustainable and inefficient energy practices within their local community and develop recommendations for improvement.
- Problem-Based Learning – participants work collaboratively to solve authentic energy-related scenarios and propose realistic interventions.

These approaches encourage active participation, reflection and practical application, fully aligning with the learner-centered methodologies identified throughout the FEEL GREEN research.



Relevance for Youth Work

Energy efficiency represents an ideal entry point for introducing sustainability concepts within youth work because it connects global environmental challenges with everyday decisions that young people can directly influence. Unlike many sustainability topics that may appear abstract, energy efficiency allows participants to observe immediate links between personal behavior, resource consumption and environmental impact.

Within non-formal education, youth workers can integrate this educational category into workshops, youth exchanges, local environmental initiatives, community campaigns and project-based learning activities. Practical exercises, collaborative challenges and real-life examples enable participants to develop not only environmental awareness but also the competences required to make informed and responsible decisions in their daily lives.

More broadly, this educational category contributes to the development of active citizenship, critical thinking and responsible participation in the green transition. By equipping youth workers with practical methodologies and accessible educational content, the FEEL GREEN framework supports the transformation of sustainability education from theoretical awareness into meaningful behavioral change, thereby strengthening the capacity of young people to become active contributors to more sustainable communities.

5.2 Sustainable Consumption Practices

Why this Educational Category?

Sustainable Consumption Practices emerged as one of the key educational categories identified through both the documentary research and the empirical needs assessment conducted within the FEEL GREEN project. While the State-of-the-Art Analysis highlighted sustainable consumption as a central priority within European sustainability policies, the survey findings demonstrated that youth workers recognize the importance of supporting young people in developing more responsible consumption habits through practical education.



The documentary analysis showed that European policy frameworks, including the European Green Deal, the Circular Economy Action Plan and the Sustainable Development Goals, increasingly promote sustainable consumption as a fundamental component of the green transition. These policies emphasize that achieving long-term environmental sustainability requires not only technological innovation but also significant behavioral changes in the way individuals purchase, consume and manage resources.

The survey findings further reinforced this perspective. Participants identified sustainable lifestyles among the sustainability topics most frequently addressed within youth work while simultaneously recognizing the need for additional educational resources capable of translating theoretical knowledge into everyday practice. Respondents consistently emphasized the importance of practical learning activities that encourage responsible consumer choices, waste prevention and conscious resource use.

Consequently, Sustainable Consumption Practices were selected as one of the core educational categories of the FEEL GREEN framework. This category encourages youth workers to approach sustainability through everyday decisions that are directly relevant to young people's lives, demonstrating how individual consumption patterns collectively contribute to broader environmental and social outcomes.

Learning Objectives

Upon completing this educational category, youth workers should be able to:

- explain the concept of sustainable consumption and its relationship with sustainable development
- help young people understand the environmental and social impacts of everyday consumption choices
- encourage critical reflection on purchasing habits, resource use and waste generation
- promote responsible consumption practices through practical educational activities
- integrate sustainable lifestyle concepts into non-formal education using participatory learning methods
- support young people in developing long-term behaviors that contribute to environmental sustainability.

Core Knowledge Areas

This educational category introduces the fundamental principles of sustainable consumption by focusing on practical behaviors that influence resource use and environmental impact. Rather than presenting sustainability as an abstract concept, the educational content connects environmental responsibility with everyday consumer decisions.

The core knowledge areas include:

Responsible Consumption

- Understanding sustainable purchasing decisions.
- Recognizing the environmental footprint of consumer products.
- Promoting informed consumer behavior.

Resource Efficiency

- Efficient use of natural resources.
- Reducing unnecessary consumption.
- Extending product lifespan through responsible use.



Waste Prevention

- Preventing waste before it is generated.
- Reuse and repair practices.
- Responsible disposal of products and materials.

Sustainable Food Choices

- Food waste prevention.
- Responsible food consumption.
- Local and seasonal food practices.

Everyday Sustainable Lifestyles

- Daily habits supporting environmental sustainability.
- Conscious consumption decisions.
- Individual responsibility within broader sustainability challenges.

Competences to be Developed

Following the principles of the GreenComp European Sustainability Competence Framework, this educational category supports the development of knowledge, skills and attitudes required for responsible consumption and sustainable lifestyles.

Knowledge

Youth workers should understand:

- the principles of sustainable consumption
- the environmental consequences of consumption patterns
- resource efficiency and waste prevention
- the relationship between consumption, climate change and sustainable development.

Skills

Youth workers should be able to:

- facilitate discussions on responsible consumption
- analyze everyday consumption behaviors critically
- design educational activities promoting sustainable lifestyles
- encourage learners to evaluate the environmental consequences of purchasing decisions
- support young people in identifying practical alternatives to unsustainable consumption.

Attitudes

Youth workers are encouraged to promote:

- responsibility towards resource use
- critical awareness of consumer behavior.
- appreciation of sustainable lifestyles.
- willingness to reduce unnecessary consumption.
- commitment to environmentally responsible decision-making.



Suggested Educational Approaches

The research findings indicate that sustainable consumption is most effectively explored through experiential and reflective educational activities that encourage participants to connect sustainability concepts with their own everyday behavior.

Suggested educational approaches include:

- Consumption Diary – participants record their consumption habits over several days before reflecting on opportunities for more sustainable choices.
- Sustainable Shopping Challenge – learners compare different consumer products based on environmental, social and economic criteria before making purchasing decisions.
- Life Cycle Investigation – participants examine the journey of a common product from production to disposal, identifying opportunities to reduce environmental impact.
- Waste-Free Week Challenge – small groups develop practical strategies for reducing waste generation within their households, schools or youth organizations.
- Group Reflection Workshops – participants discuss how individual consumption choices collectively influence environmental sustainability and community wellbeing.

These approaches encourage critical thinking, personal reflection and behavioral change while maintaining the participatory educational philosophy promoted throughout the FEEL GREEN framework.

Relevance for Youth Work

Sustainable consumption represents one of the most accessible entry points for introducing sustainability education within youth work because it directly relates to decisions that young people make every day. Food choices, clothing purchases, digital consumption, transport preferences and waste management all provide practical opportunities for connecting sustainability concepts with real-life experiences.

Within non-formal education, youth workers can incorporate this educational category into workshops, community campaigns, intercultural exchanges, volunteering activities and local environmental initiatives. By encouraging participants to critically evaluate their own consumption habits, youth workers support the development of responsible citizenship, environmental awareness and long-term behavioral change.

Furthermore, Sustainable Consumption Practices complement the Energy Efficiency category presented previously by expanding the discussion beyond energy use to encompass the broader relationship between human behavior, resource management and sustainable development. Together, these two educational categories establish the foundations upon which the remaining thematic areas of the FEEL GREEN educational framework are built.



5.3 Climate Awareness and behavioral Change

Why this Educational Category?

Climate Awareness and behavioral Change represents a fundamental educational category within the FEEL GREEN framework because it connects environmental knowledge with everyday actions that contribute to sustainable living. While awareness of climate change has increased significantly over the past decade, both the documentary research and the empirical findings demonstrate that raising awareness alone is insufficient to achieve meaningful behavioral transformation. Consequently, sustainability education must move beyond the transmission of information and focus on empowering young people to adopt environmentally responsible behaviors.

The State-of-the-Art Analysis highlighted that European sustainability policies increasingly recognize behavioral change as a prerequisite for achieving climate neutrality and the objectives of the European Green Deal. Likewise, GreenComp identifies critical thinking, futures literacy, personal responsibility and collective action as essential sustainability competences that enable individuals to translate environmental knowledge into everyday decision-making.

The empirical findings of the FEEL GREEN research further reinforced this perspective. While survey participants demonstrated relatively high familiarity with general climate-related concepts, they consistently identified the need for practical educational approaches capable of encouraging behavioral change, active participation and the application of sustainability principles in everyday life. These findings suggest that educational programs should focus not only on increasing climate awareness but also on strengthening learners' capacity to make informed and responsible decisions.

For these reasons, Climate Awareness and behavioral Change was identified as one of the core educational categories of the FEEL GREEN framework, providing youth workers with methodologies that encourage young people to become active participants in the transition towards more sustainable communities.

Learning Objectives

Upon completing this educational category, youth workers should be able to:

- explain the relationship between climate change, human activities and sustainable development.
- support young people in understanding how individual and collective behaviors influence environmental outcomes.
- encourage critical reflection on everyday habits affecting climate sustainability.
- facilitate educational activities that promote responsible environmental decision-making.
- empower young people to identify realistic actions that contribute to climate mitigation and adaptation.
- strengthen learners' motivation to participate actively in environmental initiatives within their communities.

Core Knowledge Areas

This educational category introduces the essential concepts required to understand climate awareness as a foundation for behavioral change. Rather than concentrating on scientific explanations alone, the content emphasizes the relationship between environmental knowledge, personal responsibility and practical action.

The core knowledge areas include:

Climate Change and Human Activity

- Understanding the causes and consequences of climate change.
- Human influence on greenhouse gas emissions.
- Global and local climate challenges.

Behavior and Environmental Impact

- How everyday decisions affect environmental sustainability.
- Individual and collective responsibility.
- Sustainable habits and lifestyle choices.

Climate Mitigation and Adaptation

- Reducing environmental impacts through behavioral change.
- Building resilience within communities.
- Supporting local climate action initiatives.

Critical Thinking and Environmental Decision-Making

- Evaluating environmental information.
- Identifying sustainable alternatives.
- Understanding the long-term consequences of personal choices.

Collective Action for Sustainability

- Community engagement.
- Cooperation and shared responsibility.
- Youth participation in environmental action.

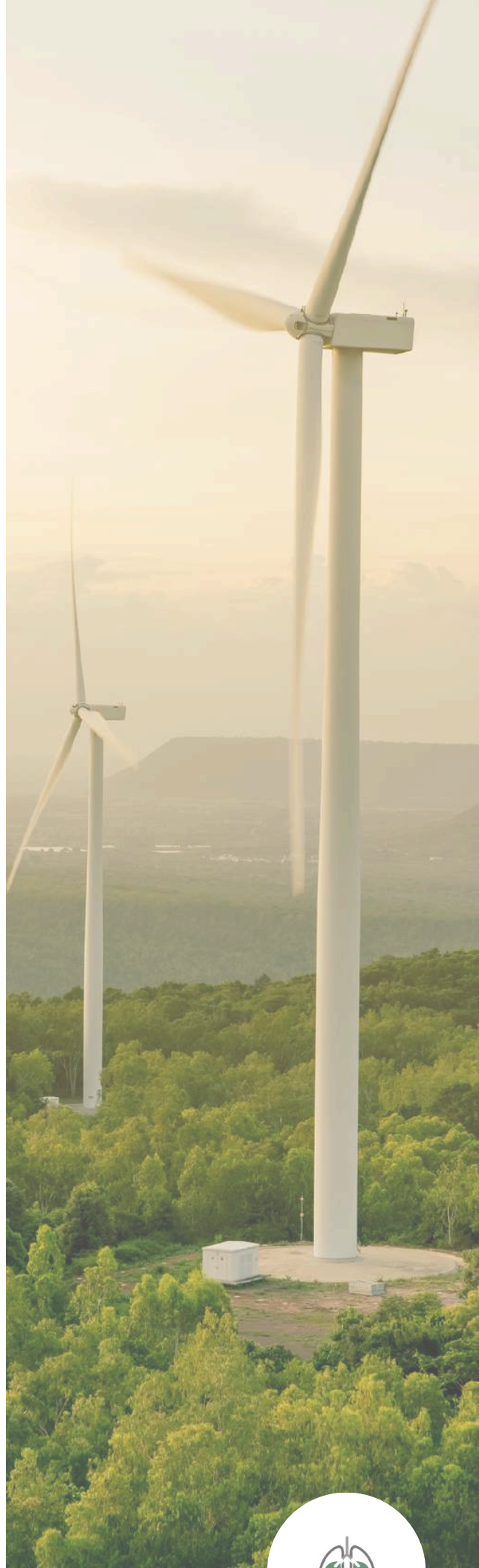
Competences to be Developed

Following the GreenComp – European Sustainability Competence Framework, this educational category supports the development of competences that enable young people to translate environmental awareness into meaningful action.

Knowledge

Youth workers should develop an understanding of:

- climate change and its environmental and social implications.
- the relationship between behavior and sustainability.
- climate mitigation and adaptation strategies.
- the importance of individual and collective action.



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Skills

Youth workers should be able to:

- facilitate critical discussions on climate-related challenges.
- encourage reflective learning and behavioral self-assessment.
- design educational activities promoting climate-positive behaviors.
- support collaborative problem-solving around local environmental issues.
- motivate young people to participate in community sustainability initiatives.

Attitudes

Youth workers are encouraged to foster:

- environmental responsibility
- empathy towards future generations
- openness to behavioral change
- critical thinking regarding environmental challenges
- willingness to participate actively in climate action.

Suggested Educational Approaches

Research findings indicate that climate awareness is most effectively developed through participatory educational experiences that combine reflection, collaboration and practical engagement.

Suggested educational approaches include:

- Behavior Change Challenge – participants identify one daily habit they wish to improve and monitor their progress over several weeks.
- Climate Action Workshop – small groups develop practical solutions for addressing local environmental challenges within their communities.
- Environmental Decision-Making Scenarios – learners analyze real-life situations requiring environmentally responsible choices and discuss alternative responses.
- Community Climate Mapping – participants identify climate-related challenges within their local area and propose realistic community-based interventions.
- Reflection Circles – facilitated group discussions encouraging participants to examine how personal values influence environmental behavior and sustainable decision-making.

These learner-centered methodologies encourage participants to connect climate knowledge with personal responsibility and practical action, reinforcing the educational philosophy underpinning the FEEL GREEN framework.

Relevance for Youth Work

Youth work provides a particularly suitable environment for supporting climate awareness because it encourages participation, dialogue and experiential learning rather than traditional classroom instruction. Through non-formal education, young people can critically explore environmental challenges, exchange experiences and collaboratively develop practical responses to sustainability issues that affect their daily lives.

Integrating climate awareness with behavioral change enables youth workers to move beyond awareness-raising campaigns towards educational processes that encourage long-term personal and social transformation. Rather than presenting sustainability as an abstract environmental objective, this educational category helps young people recognize that their everyday decisions contribute directly to broader environmental outcomes and community resilience.

Within the FEEL GREEN framework, Climate Awareness and behavioral Change therefore serves as a bridge between environmental knowledge and active citizenship. It supports the development of reflective, responsible and engaged young people who are capable of making informed decisions and contributing positively to the transition towards more sustainable and climate-resilient communities.

5.4 Circular Economy and Waste Reduction

Why this Educational Category?

Circular Economy and Waste Reduction emerged as one of the priority educational categories of the FEEL GREEN framework due to its increasing importance within European sustainability policy and its strong relevance to everyday environmental practices. The transition from a linear model of production and consumption towards a circular economy has become a central objective of the European Green Deal and the Circular Economy Action Plan, recognizing that sustainable resource management is essential for reducing environmental degradation, conserving natural resources and achieving climate neutrality.

The State-of-the-Art Analysis demonstrated that circular economy principles are increasingly incorporated into sustainability policies and educational strategies across Europe. However, the research also highlighted that these concepts are often presented at a theoretical level, while practical educational methodologies that enable young people to understand and apply circular economy principles remain comparatively limited within non-formal education.

The survey findings further supported this conclusion. Participants consistently identified Circular Economy as one of the sustainability topics requiring additional educational resources and practical learning activities. Respondents also emphasized the importance of providing educational approaches that encourage young people to move beyond waste awareness towards responsible resource management, reuse and sustainable production and consumption practices.

Consequently, Circular Economy and Waste Reduction was selected as a key educational category within the FEEL GREEN framework. This category supports youth workers in introducing practical approaches that enable young people to understand how responsible resource use contributes to environmental sustainability and community resilience.



Learning Objectives

Upon completing this educational category, youth workers should be able to:

- explain the principles of the circular economy and distinguish them from traditional linear economic models.
- help young people understand the environmental impacts of waste generation and resource depletion.
- promote waste prevention, reuse and recycling as everyday sustainability practices.
- facilitate educational activities that encourage responsible resource management.
- support learners in recognizing opportunities for extending product life cycles and reducing unnecessary waste.
- integrate circular economy principles into non-formal education through participatory and practice-oriented learning.

Core Knowledge Areas

This educational category introduces the fundamental concepts of circular economy by connecting resource management with practical environmental action. The emphasis is placed on helping young people understand that waste prevention begins with responsible consumption and continues through reuse, repair, recycling and sustainable decision-making.

The core knowledge areas include:

Introduction to the Circular Economy

- Linear versus circular economic models.
- Resource efficiency and sustainable production.
- Closing material and resource loops.

Waste Prevention

- Preventing waste before it is generated.
- Reducing unnecessary consumption.
- Promoting responsible purchasing decisions.

Reuse, Repair and Recycling

- Extending product life cycles.
- Repair culture and product maintenance.
- Recycling as part of broader resource management.



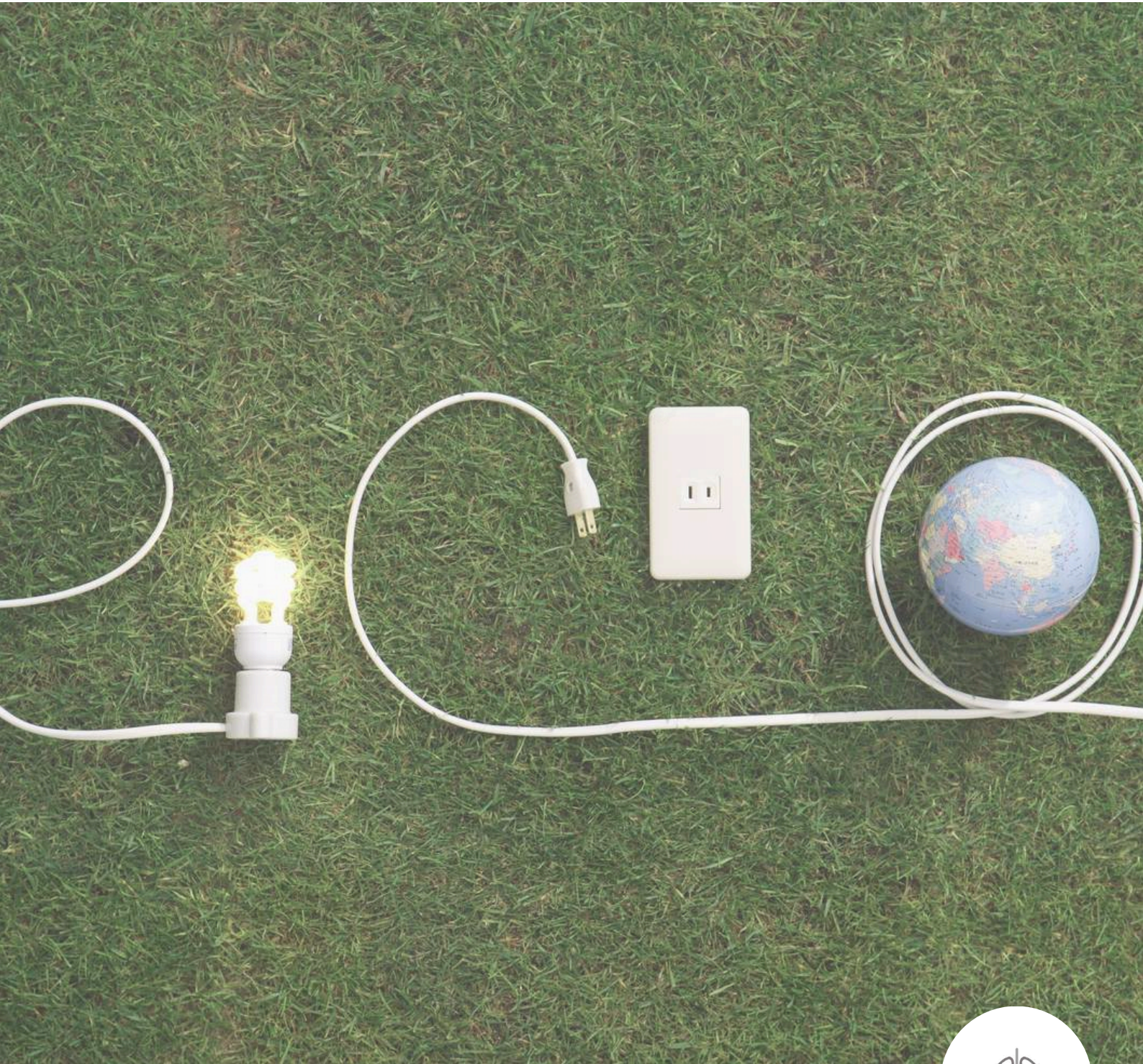
Feel Green

Responsible Resource Management

- Efficient use of natural resources.
- Material recovery and resource conservation.
- Environmental and economic benefits of circular practices.

Everyday Circular Practices

- Household waste reduction.
- Sustainable product choices.
- Community initiatives supporting circular economy principles.



Feel Green

Competences to be Developed

Following the GreenComp – European Sustainability Competence Framework, this educational category contributes to the development of competences that encourage responsible resource management and sustainable decision-making.

Knowledge

Youth workers should develop an understanding of:

- the principles of the circular economy.
- waste prevention and resource efficiency.
- sustainable production and consumption systems.
- the environmental impacts of linear economic models.

Skills

Youth workers should be able to:

- facilitate educational activities related to waste reduction and resource management.
- encourage learners to identify opportunities for reuse and recycling.
- design community-based activities promoting circular economy principles.
- support collaborative problem-solving related to local waste management challenges.
- connect circular economy concepts with everyday behaviors.

Attitudes

Youth workers are encouraged to promote:

- responsibility towards natural resources
- appreciation of resource efficiency
- openness to repairing and reusing products
- commitment to reducing waste generation
- willingness to adopt more sustainable consumption patterns.

Suggested Educational Approaches

The research findings suggest that circular economy concepts are most effectively understood when learners actively participate in practical activities demonstrating the value of resource efficiency and waste reduction.

Suggested educational approaches include:

- Waste Audit Activity – participants analyze waste generated within a youth center, school or community space and identify opportunities for prevention and reduction.
- Product Life Cycle Workshop – learners examine the journey of everyday products from raw material extraction to disposal, exploring opportunities to extend product life cycles.
- Repair and Reuse Challenge – participants identify products that could be repaired, repurposed or reused instead of discarded.
- Circular Community Mapping – learners identify local businesses, organizations or initiatives that promote recycling, repair or circular economy practices within their community.
- Design Thinking Workshop – participants collaboratively develop innovative solutions for reducing waste and improving resource efficiency within local environments.

These participatory methodologies encourage learners to connect sustainability concepts with practical problem-solving while strengthening environmental responsibility and collaborative learning.



Relevance for Youth Work

Circular economy education provides youth workers with practical opportunities to demonstrate that sustainability extends beyond environmental awareness and requires responsible management of resources throughout their entire life cycle. By introducing concepts such as reuse, repair, recycling and waste prevention through experiential learning, youth workers help young people understand how everyday decisions influence environmental sustainability.

Within non-formal education, this educational category can be integrated into environmental workshops, volunteering initiatives, community clean-up campaigns, creative upcycling activities and project-based learning programs. Such activities encourage participants to become active contributors to more resource-efficient communities while strengthening teamwork, creativity and problem-solving skills.

Within the FEEL GREEN educational framework, Circular Economy and Waste Reduction complements the previous educational categories by expanding the focus from individual energy use and sustainable consumption towards the broader management of materials and resources. Together, these interconnected themes contribute to developing the practical sustainability competences required for active participation in the transition towards a more sustainable and circular society.

5.5 Community Participation and Active Citizenship

Why this Educational Category?

Community Participation and Active Citizenship constitute an essential educational category within the FEEL GREEN framework because sustainable development cannot be achieved solely through individual behavioral change. While responsible personal choices are fundamental, long-term environmental sustainability also depends on collective action, civic engagement and cooperation within local communities. Consequently, empowering young people to actively participate in community initiatives represents a key objective of contemporary sustainability education.

The documentary research demonstrated that European policy frameworks increasingly recognize active citizenship as a core component of sustainability education. Both the European Green Deal and the European Competence Framework for Sustainability (GreenComp) emphasize that citizens should not only understand environmental challenges but also develop the competences required to participate in democratic decision-making, collaborate with others and contribute to sustainable community development.

The empirical findings of the FEEL GREEN research further confirmed this perspective. Throughout the survey, respondents consistently highlighted the importance of experiential learning, collaborative educational approaches and community-based activities that enable young people to apply sustainability knowledge in real-life contexts. Participants also recognized community participation as an important educational priority requiring practical methodologies capable of encouraging long-term engagement rather than isolated environmental actions.

Based on these findings, Community Participation and Active Citizenship were identified as a key educational category of the FEEL GREEN framework. This category supports youth workers in creating learning environments where sustainability is experienced as a shared social responsibility and where young people become active contributors to positive environmental change within their local communities.



Learning Objectives

Upon completing this educational category, youth workers should be able to:

- explain the relationship between sustainability, civic participation and community development.
- encourage young people to identify environmental challenges affecting their local communities.
- facilitate collaborative learning activities that promote collective problem-solving.
- support young people in planning and implementing community-based sustainability initiatives.
- strengthen learners' understanding of democratic participation and shared environmental responsibility.
- promote active citizenship as an integral component of sustainable development.

Core Knowledge Areas

This educational category focuses on the role of communities in achieving sustainability objectives. Rather than viewing sustainability as an individual responsibility alone, learners are encouraged to understand how cooperation, participation and civic engagement contribute to long-term environmental and social resilience.

The core knowledge areas include:

Active Citizenship and Sustainability

- Understanding active citizenship within sustainable development.
- Civic responsibility and environmental stewardship.
- Democratic participation in local sustainability initiatives.

Community-Based Sustainability

- Local environmental challenges.
- Community cooperation and collective action.
- Building sustainable local partnerships.

Youth Participation

- The role of young people in environmental decision-making.
- Volunteering and civic engagement.
- Youth-led sustainability initiatives.

Collaborative Problem-Solving

- Participatory approaches to addressing environmental issues.
- Shared responsibility and teamwork.
- Community dialogue and stakeholder engagement.

Local Action for Global Goals

- Connecting local initiatives with the Sustainable Development Goals.
- Promoting community resilience.



8.3 Accessibility in Non-Formal Education Activities

Competences to be Developed

Following the GreenComp – European Sustainability Competence Framework, this educational category contributes to the development of competences that enable young people to become active and responsible members of their communities.

Knowledge

Youth workers should develop an understanding of:

- the principles of active citizenship.
- community participation within sustainability education.
- collaborative approaches to environmental action.
- local governance and community engagement.

Skills

Youth workers should be able to:

- facilitate participatory community learning activities
- encourage collaborative decision-making
- support young people in planning community-based sustainability projects
- build partnerships with local organizations and stakeholders
- facilitate dialogue on local environmental priorities

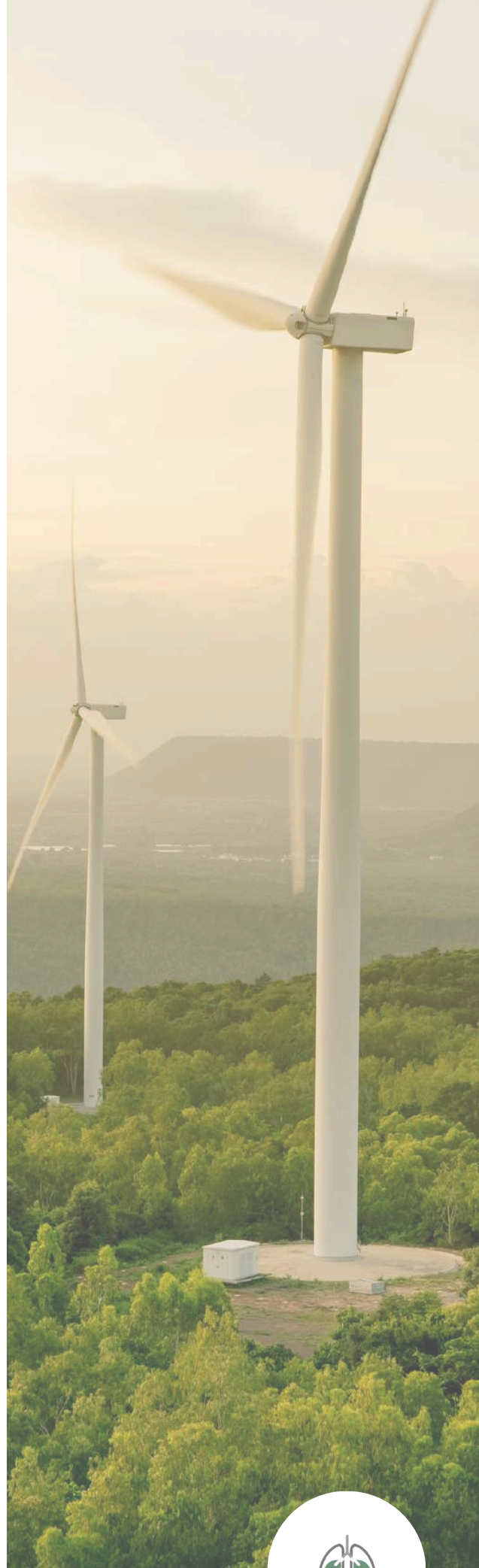
Attitudes

Youth workers are encouraged to promote:

- social responsibility
- cooperation and mutual respect
- commitment to community wellbeing
- willingness to participate in civic life
- confidence in contributing to positive environmental change.

Suggested Educational Approaches

The research findings indicate that active citizenship is best developed through educational experiences that encourage participation, collaboration and direct engagement with local communities.



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Suggested educational approaches include:

- Community Sustainability Mapping – participants identify environmental assets, challenges and opportunities within their local community before proposing practical improvement actions.
- Neighborhood Action Project – learners collaboratively design and implement a small-scale sustainability initiative responding to a locally identified environmental issue.
- Stakeholder Dialogue Simulation – participants assume the roles of local authorities, community organizations, businesses and citizens to negotiate solutions to environmental challenges affecting their community.
- Youth Participation Forum – young people discuss local sustainability priorities, develop recommendations and present their ideas to community representatives or youth organizations.
- Service-Learning Activities – participants combine community volunteering with structured reflection to explore the relationship between civic engagement and environmental sustainability.

These educational approaches strengthen learners' sense of ownership, cooperation and responsibility while demonstrating that sustainability is achieved through collective rather than individual action.

Relevance for Youth Work

Youth work provides unique opportunities to strengthen community participation because it creates inclusive learning environments where young people can develop civic competences through active engagement rather than formal instruction. Community-based educational activities encourage participants to collaborate, communicate effectively and assume responsibility for addressing environmental challenges that affect their everyday lives.

By integrating active citizenship into sustainability education, youth workers support the development of young people who are not only environmentally aware but also willing to participate in collective efforts that improve their communities. Such experiences strengthen democratic participation, social inclusion and community resilience while simultaneously promoting environmental responsibility.

Within the FEEL GREEN educational framework, Community Participation and Active Citizenship represent the transition from individual sustainability competences to collective environmental action. This educational category encourages young people to recognize that meaningful sustainability requires cooperation, dialogue and active engagement with local communities, enabling them to become informed, responsible and proactive citizens capable of contributing to a more sustainable future.



5.6 Digital Sustainability and Green Innovation

Why this Educational Category?

Digital Sustainability and Green Innovation represent an increasingly important dimension of sustainability education, reflecting the growing interaction between digital transformation and environmental responsibility. While digital technologies create new opportunities for improving access to education, supporting collaboration and promoting sustainable practices, they also require learners to develop the competences necessary to use these technologies responsibly and critically. Consequently, sustainability education must prepare young people not only to understand environmental challenges but also to recognize how digital innovation can contribute to more sustainable societies.

The State-of-the-Art Analysis demonstrated that European sustainability and digital education policies increasingly promote the integration of digital technologies into education as a means of strengthening sustainability competences, facilitating lifelong learning and encouraging innovation. At the same time, the analysis identified a continuing need for accessible digital educational resources specifically designed to support youth workers in delivering sustainability education.

The empirical findings of the FEEL GREEN research further confirmed this need. Participants consistently expressed strong interest in practical digital educational resources, online learning environments and interactive educational materials capable of supporting non-formal education. The survey also demonstrated a positive willingness among respondents to integrate online learning platforms into their professional practice, indicating that digital education is increasingly recognized as a valuable complement to face-to-face learning.

Based on these findings, Digital Sustainability and Green Innovation were identified as one of the core educational categories of the FEEL GREEN framework. This category supports youth workers in exploring how digital technologies, creativity and innovation can strengthen sustainability education while encouraging young people to become active contributors to environmentally responsible digital societies.

Learning Objectives

Upon completing this educational category, youth workers should be able to:

- explain the relationship between digital technologies and sustainable development.
- recognize the opportunities and challenges associated with digital sustainability.
- encourage young people to use digital technologies responsibly in support of environmental objectives.
- introduce learners to examples of green innovation addressing environmental challenges.
- integrate digital educational tools into sustainability learning activities.
- promote creativity, innovation and problem-solving through technology-enhanced learning.



Core Knowledge Areas

This educational category introduces the relationship between digital transformation and sustainability by focusing on the responsible use of digital technologies and their contribution to environmental innovation.

The core knowledge areas include:

Digital Sustainability

- Understanding responsible digital practices.
- Digital technologies supporting environmental sustainability.
- Digital responsibility and environmental awareness.

Green Innovation

- Innovation as a driver of sustainable development.
- Technological solutions addressing environmental challenges.
- Creativity in sustainability education.

Digital Learning for Sustainability

- Online learning environments.
- Open Educational Resources (OER).
- Interactive digital educational tools.

Responsible Digital Citizenship

- Ethical use of digital technologies.
- Digital participation and collaboration.
- Critical evaluation of online environmental information.

Technology for Community Engagement

- Digital campaigns supporting sustainability.
- Citizen science initiatives.
- Collaborative online environmental projects.

Competences to be Developed

Following the GreenComp – European Sustainability Competence Framework, this educational category contributes to the development of competences that combine sustainability thinking with digital innovation and responsible technology use.

Knowledge

Youth workers should develop an understanding of:

- digital sustainability principles
- the contribution of digital technologies to sustainable development
- innovation processes supporting environmental solutions
- responsible digital citizenship



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Skills

Youth workers should be able to:

- integrate digital educational tools into sustainability activities
- facilitate technology-supported collaborative learning
- evaluate digital resources critically
- encourage learners to design innovative environmental solutions
- support digital communication and community engagement around sustainability issues

Youth workers are encouraged to promote:

- openness towards innovation
- responsible use of digital technologies
- creativity in addressing sustainability challenges
- ethical digital behavior

willingness to explore new educational approaches

Suggested Educational Approaches

The research findings indicate that digital technologies should be integrated into sustainability education as practical learning tools that complement participatory and experiential educational methodologies.

Suggested educational approaches include:

- Digital Sustainability Challenge – participants use digital applications to record, analyze and improve everyday sustainability behaviors, such as monitoring energy use, waste generation or sustainable mobility choices.
- Green Innovation Workshop – learners work collaboratively to design innovative digital solutions addressing local environmental challenges using creative problem-solving techniques.
- Interactive Online Learning Activities – participants engage with digital educational platforms, quizzes, simulations and multimedia resources that reinforce sustainability competences through self-directed learning.
- Digital Storytelling Project – young people create short digital campaigns, videos or social media content promoting sustainable behaviors within their communities.
- Citizen Science Activities – learners use digital tools to collect environmental data, contribute to community-based monitoring initiatives and explore evidence-based environmental decision-making.

These educational approaches encourage the meaningful integration of digital technologies into non-formal education while strengthening learners' creativity, collaboration and problem-solving competences.



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Relevance for Youth Work

Digital technologies have become an integral part of young people's everyday lives and therefore represent valuable educational tools for promoting sustainability learning. When used appropriately, digital resources extend learning beyond traditional educational settings, facilitate access to high-quality educational materials and encourage continuous professional development for youth workers.

Within non-formal education, youth workers can integrate digital sustainability into workshops, youth exchanges, blended learning activities, online collaboration projects and community awareness campaigns. Digital educational tools also enable learners to participate actively in environmental initiatives, communicate sustainability messages and collaborate with peers across different geographical contexts.

Within the FEEL GREEN educational framework, Digital Sustainability and Green Innovation represent the final educational category because they bring together the knowledge, competences and pedagogical approaches developed throughout the previous sections. By combining sustainability education with digital innovation, youth workers are better equipped to deliver engaging, learner-centered and future-oriented educational experiences that respond to both the environmental and digital transitions currently shaping European societies.

5.7 Educational Implications for Youth Work

The educational categories presented throughout this chapter provide a structured framework for supporting sustainability education within non-formal learning environments. Developed through the combined analysis of European policy frameworks, scientific literature and the empirical findings of the FEEL GREEN research, these categories represent the principal learning priorities identified for youth workers and other professionals working with young people.

Taken together, the framework demonstrates that sustainability education should not be approached as the transmission of isolated environmental concepts, but rather as a holistic educational process that integrates knowledge acquisition, competence development and behavioral transformation. The educational categories are therefore designed to complement one another, enabling learners to progressively develop a comprehensive understanding of sustainability while simultaneously strengthening their capacity to apply this knowledge in everyday life and within their local communities.

For youth workers, this framework provides a practical methodological structure for planning, delivering and evaluating sustainability education activities. Rather than prescribing a fixed curriculum, the framework offers flexible thematic areas that can be adapted to different educational contexts, target groups and learning objectives. This flexibility is particularly important within non-formal education, where learner participation, experiential learning and contextual adaptation represent fundamental pedagogical principles.



The research findings consistently highlighted the importance of learner-centered educational approaches that encourage active participation, collaboration, reflection and practical problem-solving. Consequently, the educational categories have been intentionally designed to support participatory methodologies, allowing young people to move beyond theoretical understanding towards meaningful engagement with real-life sustainability challenges. By connecting environmental knowledge with everyday experiences, community participation and digital innovation, youth workers are better positioned to facilitate learning processes that encourage long-term behavioral change.

An equally important implication concerns the evolving role of youth workers within sustainability education. The findings suggest that youth workers increasingly act as facilitators, mentors and learning designers rather than providers of information alone. Their role extends beyond communicating environmental knowledge to creating inclusive learning environments where young people are encouraged to explore sustainability challenges, collaborate with others, critically evaluate information and develop practical solutions relevant to their own communities. This pedagogical shift reflects the competence-based approach promoted by GreenComp and by contemporary European youth work policies.

The framework also recognizes that sustainability education should remain dynamic and responsive to emerging environmental, technological and societal developments. As sustainability challenges continue to evolve, youth workers require continuous opportunities for professional development, access to updated educational resources and opportunities to exchange good practices with other practitioners. The educational categories presented in this handbook therefore provide a methodological foundation that can be continuously enriched through future learning experiences, innovative educational practices and ongoing collaboration across the youth sector.

Ultimately, the FEEL GREEN Educational Framework positions sustainability education as a process of empowering young people to become informed, responsible and active contributors to sustainable development. Through the integration of energy efficiency, sustainable consumption, climate awareness, circular economy, community participation and digital innovation, the framework supports the development of the knowledge, skills and attitudes required for meaningful participation in the green transition.

The educational categories presented in this chapter therefore constitute the pedagogical foundation of the FEEL GREEN project. Together with the digital learning platform and the accompanying educational resources developed through the project, they provide youth workers with an evidence-based methodological framework capable of supporting high-quality sustainability education across diverse non-formal learning environments



6. Good Practices and Case Studies for Sustainability Education

The previous chapter presented the FEEL GREEN Educational Framework, organizing the findings of the documentary research and empirical needs assessment into six thematic educational categories that address the most significant sustainability learning priorities for youth workers. While these categories provide the methodological foundation for sustainability education, their effective implementation requires practical examples that demonstrate how sustainability concepts can be translated into engaging and meaningful learning experiences.

The case studies presented in this chapter have been carefully selected as examples of good practices in sustainability education from across Europe. Each case study corresponds to one of the educational categories introduced in Chapter 5 and illustrates how different organizations, institutions or initiatives have successfully promoted sustainability through non-formal education, community engagement and innovative learning approaches. Beyond describing individual initiatives, the case studies highlight their educational value, the learning outcomes they support and their potential for adaptation within different youth work contexts. Together, they provide youth workers with practical inspiration and transferable methodologies that can strengthen the design and delivery of sustainability education activities while reinforcing the evidence-based educational framework developed throughout the FEEL GREEN project.

6.1 Case Study 1 – Energy Efficiency Practices

Case Study Overview

Case Study.

Country

Organisation.

Initiative

Implementation

Period

Target Group

Educational Category

Energy Saving Campaign – University of Luxembourg
Luxembourg

University of Luxembourg
Energy Saving Campaign

October 2022 – Present

Students, academic staff and administrative personnel

Energy Efficiency Practices



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Background

The Energy Saving Campaign implemented by the University of Luxembourg represents one of the most comprehensive institutional energy efficiency initiatives developed in Luxembourg in response to the European energy crisis of 2022. The campaign was officially launched in October 2022, following the sharp increase in energy prices across Europe and growing concerns regarding energy security after the disruption of European gas supplies.

As one of Luxembourg's leading public universities, hosting approximately 7,000 students and more than 2,400 academic and administrative staff across three campuses, the University recognized that reducing energy consumption required both technical improvements and significant behavioral change among its university community. Rather than relying solely on infrastructure investments, the institution adopted a comprehensive energy management strategy combining technological optimization with awareness-raising activities aimed at encouraging more responsible energy use throughout the organization.

Description of the Initiative

The campaign was implemented as part of Luxembourg's wider "Zesumme Spueren" ("Saving Together") national energy-saving effort and focused on reducing energy consumption without compromising the quality of education, research and campus operations. The initiative combined operational measures, digital monitoring and behavioral interventions to achieve measurable reductions in energy use.

Among the principal actions implemented were:

- optimization of heating systems through lower indoor temperature settings and improved scheduling.
- adjustment of ventilation systems according to building occupancy.
- optimization of lighting systems across university facilities.
- reduction of unnecessary energy consumption during evenings, weekends and holiday periods.
- continuous monitoring of energy consumption across university buildings.
- awareness campaigns encouraging students and staff to adopt energy-saving behaviors.
- dissemination of practical energy-saving guidance through the university intranet and internal communication channels.

The campaign emphasized that energy efficiency is not solely the responsibility of facility managers but requires the active participation of the entire university community. By combining technical measures with behavioral awareness, the initiative created a shared culture of environmental responsibility and collective action.

Why it is Considered Good Practice

The University of Luxembourg initiative is recognized as a good practice because it demonstrates how institutional energy efficiency can be achieved through the integration of technological improvements and behavioral change strategies rather than relying exclusively on infrastructure investments.

Within the first months of implementation, the campaign generated measurable environmental and economic benefits. Between October 2022 and May 2023, the University achieved approximately:

- 19.2% reduction in heating energy consumption.
- almost 25% lower heating consumption compared with the average of previous reference years.
- approximately €600,000 in energy cost savings.
- avoidance of around 311 tons of CO₂-equivalent emissions.

These results illustrate that relatively simple operational adjustments combined with active community participation can produce substantial environmental and financial impacts within a short period of time. The initiative has consequently been highlighted by Luxembourg's KlimaPakt fir Betriber program as an example of effective institutional decarbonization and energy transition.

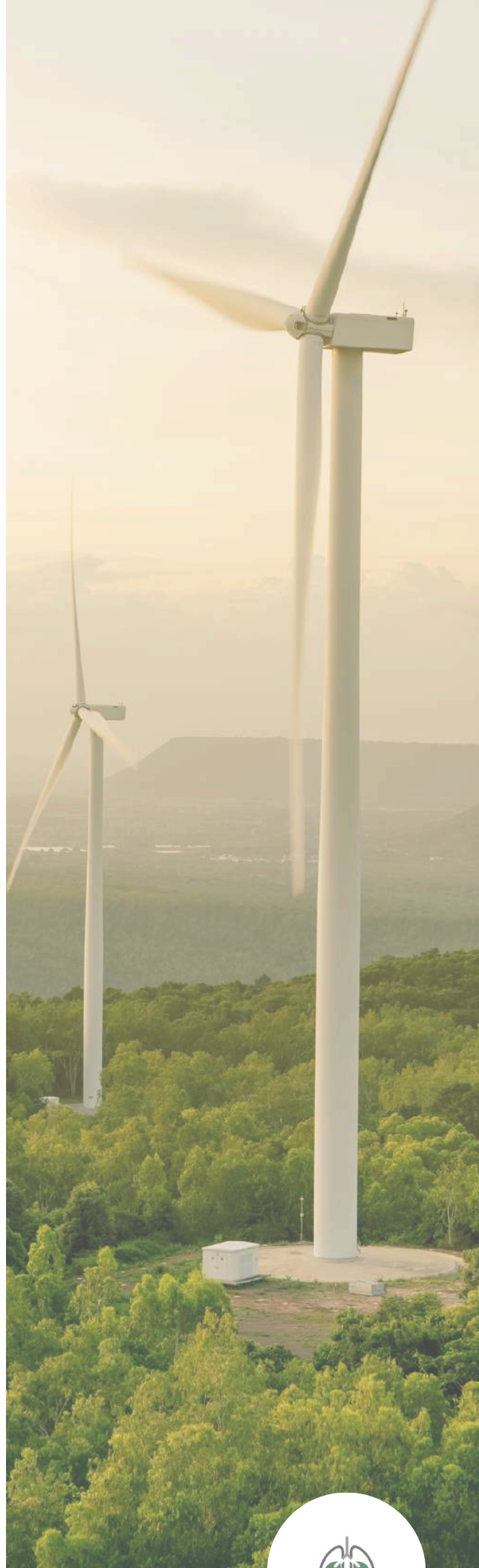
Educational Value

Beyond its operational success, this initiative offers considerable educational value for sustainability education and youth work. It demonstrates that energy efficiency should not be presented exclusively as a technical issue but rather as a practical competence that can be developed through participation, collaboration and everyday behavioral choices.

The campaign illustrates several important educational principles, including:

- connecting sustainability with real-life situations
- encouraging shared responsibility for environmental outcomes
- combining scientific evidence with practical action
- demonstrating measurable environmental impact
- promoting collective behavioral change rather than individual awareness alone

From an educational perspective, the initiative helps learners understand that even relatively small behavioral adjustments, when adopted collectively, can generate significant environmental and economic benefits.



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Learning Outcomes

The University of Luxembourg case study supports the development of several sustainability competences consistent with the GreenComp European Sustainability Competence Framework.

Following analysis of this case study, learners are expected to:

- understand the principles of institutional energy efficiency
- recognize the relationship between individual behavior and organizational energy performance
- identify practical energy-saving measures applicable to educational environments
- evaluate how behavioral change contributes to environmental sustainability
- appreciate the importance of collective action in reducing energy consumption
- develop critical thinking regarding sustainable management of public buildings and educational institutions

These learning outcomes contribute directly to the educational objectives of the FEEL GREEN framework by strengthening both sustainability knowledge and practical problem-solving competences.

Transferability to Youth Work

The methodology implemented by the University of Luxembourg can be readily adapted to non-formal education settings and youth work activities. Although youth organizations generally operate on a smaller scale than higher education institutions, the underlying educational principles remain highly transferable.

Youth workers may adapt this approach by organizing energy audits of youth centers, conducting classroom or community energy-saving challenges, monitoring electricity consumption during educational activities or involving young people in identifying opportunities to reduce unnecessary energy use within their own organizations. Similar activities can also be incorporated into youth exchanges, environmental workshops and community campaigns, enabling participants to experience sustainability through practical engagement rather than theoretical instruction.

Perhaps the most important lesson offered by this case study is that effective energy efficiency programs are built upon the combination of technical solutions and human behavior. By encouraging participation, collaboration and shared responsibility, youth workers can create learning environments in which sustainability becomes an active and measurable component of everyday life. The University of Luxembourg initiative therefore provides an excellent example of how evidence-based institutional practices can inspire practical educational activities that support the objectives of the FEEL GREEN project.



References

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2. KlimaPakt fir Betriber – Energy Case Studies and Technical Measures – Official repository presenting the University's energy optimization measures, monitoring process and implementation details within the national Climate Pact for Businesses.
3. Luxembourg Draft Updated National Energy and Climate Plan (NECP) 2021–2030 – European Commission – Provides the national policy framework supporting energy efficiency, the Energy Efficiency Obligation Scheme (EEOS) and the Klimapakt fir Betriber initiative within Luxembourg's energy transition strategy.

6.2 Case Study 2 – Sustainable Consumption Practices

Case Study Overview

Case Study	BOROUME – Saving Food, Saving Lives
Country	Greece
Organisation	BOROUME – Non-Profit Organisation
Initiative	Food Rescue & Food Waste Prevention Program
Implementation Period	2011 – Present
Target Group	Food businesses, charities, schools, volunteers, local
Educational Category	Sustainable Consumption Practices





Background

BOROUME (meaning "We Can" in Greek) is a non-profit organization founded in 2011 in Athens during the Greek economic crisis. Initially established to combat food insecurity by rescuing surplus food and redistributing it to people in need, the organization gradually expanded its mission to include food waste prevention, sustainable consumption education and public awareness.

The initiative was developed in response to two interconnected societal challenges: the growing number of vulnerable citizens experiencing food insecurity and the large quantities of edible food being discarded daily throughout the food supply chain. Rather than treating these challenges separately, BOROUME introduced an innovative model that simultaneously reduces food waste while supporting social solidarity.

Over the past decade, the organization has developed into one of Greece's leading actors in food redistribution and sustainable consumption education, collaborating with supermarkets, hotels, restaurants, bakeries, food producers, schools, municipalities and civil society organizations throughout the country.

Description of the Initiative

BOROUME operates a nationwide food rescue network that connects businesses with surplus edible food to charities and social organizations capable of immediately distributing these products to vulnerable populations.

The initiative combines practical intervention with educational activities. Besides coordinating daily food donations, BOROUME organizes awareness campaigns, school educational programs, public events and professional training aimed at reducing food waste across different sectors of society.

Since its establishment, the organization has achieved significant measurable results, including:

- cooperation with more than 650 charitable organizations across Greece.
- collaboration with thousands of food donors, including supermarkets, food industries, hotels, restaurants and local producers.
- facilitation of tens of thousands of food donations annually.
- rescue and redistribution of millions of food portions that would otherwise have been wasted.
- implementation of nationwide educational campaigns promoting responsible food consumption and waste prevention.



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In addition to food redistribution, BOROUME has developed educational initiatives such as "No Portion Goes to Waste", school awareness programs and training sessions for hospitality professionals, helping different target groups understand the environmental, social and economic consequences of food waste while encouraging more sustainable consumption behaviors.

Why it is Considered Good Practice

BOROUME is widely recognized as a good practice because it successfully combines environmental sustainability with social impact through an integrated approach to food waste prevention.

Rather than focusing exclusively on recycling or waste management, the initiative prioritizes waste prevention, which represents the highest level of the food waste hierarchy promoted by the European Union. By rescuing edible food before it becomes waste, the organization simultaneously reduces greenhouse gas emissions, conserves natural resources and supports food security for vulnerable populations.

Another reason for its recognition is the initiative's strong emphasis on behavioral change. Through continuous public awareness campaigns, educational programs and stakeholder engagement, BOROUME promotes responsible consumption habits among citizens, schools, businesses and public institutions. This integrated approach has led to its presentation as a recognized example of food waste prevention within European discussions on sustainable food systems and voluntary agreements for reducing food waste.

Educational Value

From an educational perspective, BOROUME demonstrates that sustainable consumption extends far beyond responsible purchasing decisions. The initiative encourages learners to understand the complete life cycle of food, recognize the environmental consequences of waste and appreciate the social value of responsible resource management.

The case study illustrates several important educational principles, including:

- linking environmental sustainability with social responsibility.
- promoting waste prevention before waste management.
- encouraging informed consumer behavior.
- demonstrating the environmental value of food redistribution.
- strengthening cooperation between citizens, businesses and local communities.

The initiative also provides an excellent example of how sustainability education can be directly connected with everyday behaviors that are easily understood and replicated by young people.

Learning Outcomes

Following analysis of this case study, learners are expected to:

- understand the principles of sustainable food consumption.
- recognize food waste as both an environmental and social challenge.
- identify practical strategies for preventing unnecessary food waste.
- evaluate how responsible consumption contributes to sustainable development.
- appreciate the importance of cooperation between different stakeholders in promoting sustainability.
- develop greater awareness of their own consumption habits and opportunities for behavioral change.

These learning outcomes directly support the FEEL GREEN Educational Framework by encouraging practical sustainability competences rooted in everyday life.



Transferability to Youth Work

The BOROUME initiative offers numerous opportunities for adaptation within youth work and non-formal education. Although youth organizations may not operate large-scale food redistribution networks, the educational methodology underlying the initiative can be easily transferred to local learning environments.

Youth workers can organize food waste awareness campaigns, sustainable cooking workshops, surplus food collection activities, school or community food-sharing events and reflection exercises examining personal consumption habits. Learners may also conduct food waste audits within youth centers or schools, develop awareness campaigns using social media or collaborate with local charities and food banks to promote responsible consumption within their communities.

Perhaps the most valuable lesson offered by BOROUME is that sustainability education becomes significantly more meaningful when environmental protection is linked with social solidarity. By demonstrating that preventing food waste benefits both people and the environment, the initiative provides youth workers with an inspiring example of how sustainable consumption can be transformed from an abstract environmental concept into practical community action that produces measurable social and environmental benefits.

References

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2. SDG Labs (University of Macedonia). Case Study: BOROUME – Saving Food, Saving Lives.
3. European Commission – EU Platform on Food Losses and Food Waste. Examples of national food waste prevention initiatives, including the Greek Alliance for the Reduction of Food Waste coordinated by BOROUME.



6.3 Case Study 3 – Climate Awareness and behavioral Change

Transferability to Youth Work

The BOROUME initiative offers numerous opportunities for adaptation within youth work and non-formal education. Although youth organizations may not operate large-scale food redistribution networks, the educational methodology underlying the initiative can be easily transferred to local learning environments.

Youth workers can organize food waste awareness campaigns, sustainable cooking workshops, surplus food collection activities, school or community food-sharing events and reflection exercises examining personal consumption habits. Learners may also conduct food waste audits within youth centers or schools, develop awareness campaigns using social media or collaborate with local charities and food banks to promote responsible consumption within their communities.

Perhaps the most valuable lesson offered by BOROUME is that sustainability education becomes significantly more meaningful when environmental protection is linked with social solidarity. By demonstrating that preventing food waste benefits both people and the environment, the initiative provides youth workers with an inspiring example of how sustainable consumption can be transformed from an abstract environmental concept into practical community action that produces measurable social and environmental benefits.

Case Study	Eco-Schools Slovakia – Climate Action Program
Country	Slovakia
Organisation	Živica Association (Eco-Schools Slovakia – Foundation for Environmental Education)
Initiative	Eco-Schools Climate Action Program
Implementation Period	2004 – Present
Target Group	Primary and secondary schools, teachers, young people and local communities
Educational Category	Climate Awareness and behavioral Change



Background

The Eco-Schools program was introduced in Slovakia in 2004 by the Živica Association, becoming part of the international Eco-Schools network coordinated by the Foundation for Environmental Education (FEE). The initiative was developed in response to the growing need for environmental education that extends beyond theoretical knowledge and encourages long-term behavioral change among young people.

Rather than treating climate change as an isolated educational topic, the program integrates environmental responsibility into everyday school life through participatory learning, democratic decision-making and community involvement. The initiative encourages schools to become living examples of sustainability, enabling students to experience environmental responsibility through practical action rather than classroom instruction alone.

Since its introduction, hundreds of Slovak schools have participated in the program, engaging thousands of students, teachers and local stakeholders in climate-related educational activities and sustainability projects.

Description of the Initiative

The Eco-Schools methodology is structured around the internationally recognized Seven Steps Methodology, which guides participating schools through a continuous process of environmental improvement and behavioral change.

The program includes:

- establishment of student-led Eco-Committees.
- environmental audits conducted by students.
- preparation of annual action plans.
- implementation of sustainability projects.
- integration of environmental themes into teaching.
- continuous monitoring and evaluation.
- community engagement and communication of results.

The initiative addresses a wide range of sustainability topics, including:

- climate change.
- biodiversity.
- sustainable consumption.
- waste reduction.
- water management.
- energy efficiency.

By 2024, the Slovak Eco-Schools network included more than 300 participating schools, involving tens of thousands of students and teachers in long-term sustainability education and community action.



Why it is Considered Good Practice

The Eco-Schools program is widely recognized as one of the most successful environmental education initiatives in Europe because it places behavioral change at the center of the learning process.

Instead of focusing primarily on environmental information, the program encourages learners to investigate local environmental challenges, participate in decision-making, implement practical solutions and evaluate the outcomes of their actions.

Another significant strength is its whole-school approach. Sustainability is not treated as a separate subject but becomes part of school governance, everyday routines and community engagement. This integrated methodology enables learners to develop environmental responsibility through repeated practice and participation rather than through isolated educational activities.

The program has received international recognition through the Eco-Schools Green Flag Award, one of the world's most respected environmental certifications for educational institutions.

Educational Value

This initiative demonstrates that climate awareness develops most effectively when learners actively participate in identifying environmental problems and implementing practical solutions.

The program illustrates several important educational principles:

- experiential learning.
- student participation in decision-making.
- collaborative problem-solving.
- reflective learning.
- continuous behavioral improvement.
- community engagement.

Rather than presenting climate change as a distant global issue, Eco-Schools encourages young people to recognize how everyday actions contribute to broader environmental sustainability.

Learning Outcomes

Following analysis of this case study, learners are expected to:

- understand the relationship between climate awareness and behavioral change.
- recognize the importance of participation in environmental decision-making.
- identify practical actions that reduce environmental impacts.
- develop collaborative problem-solving competences.
- strengthen critical thinking regarding sustainability challenges.
- appreciate the role of schools and communities in promoting climate action.

These learning outcomes directly support the FEEL GREEN Educational Framework by promoting sustainability competences that combine environmental knowledge with active participation and long-term behavioral change.



Transferability to Youth Work

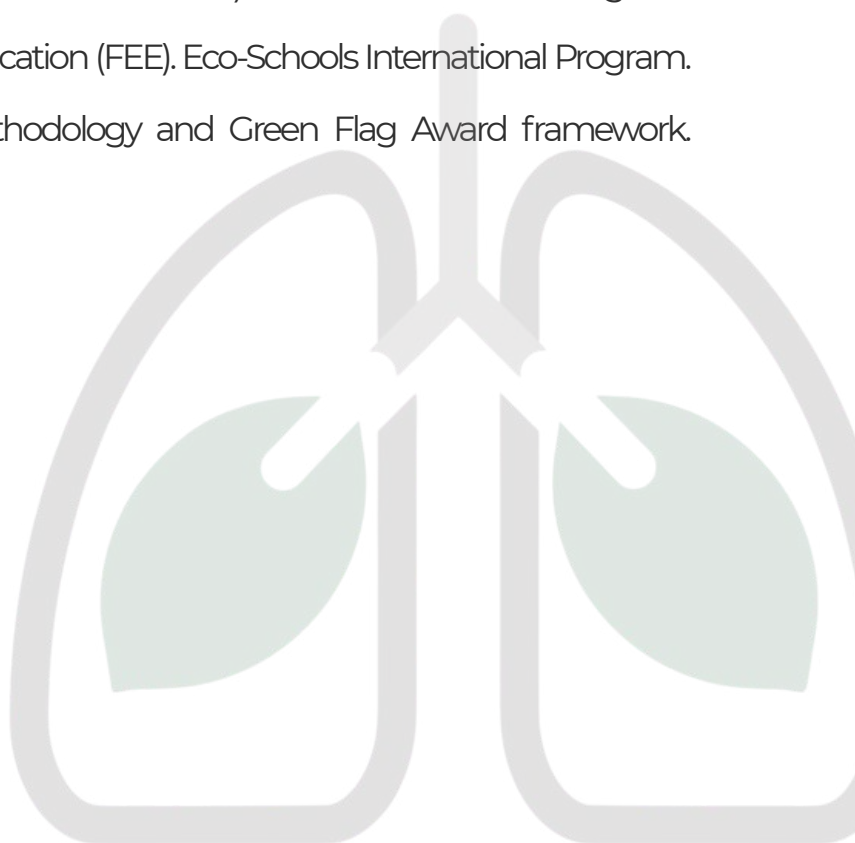
The Eco-Schools methodology can be successfully transferred to youth work because its educational philosophy is based on participation, collaboration and experiential learning rather than formal classroom teaching.

Youth workers can adapt the approach by establishing youth environmental committees, organizing sustainability audits within youth centers, involving young people in local environmental planning and implementing community-based climate projects. The program also demonstrates how continuous reflection and participant involvement can significantly increase learners' motivation to adopt sustainable behaviors.

Perhaps the most valuable lesson offered by this initiative is that meaningful behavioral change cannot be achieved through awareness campaigns alone. Instead, it develops gradually through active participation, shared responsibility and repeated opportunities to apply sustainability principles in real-life contexts. These characteristics make the Eco-Schools program an excellent model for youth workers seeking to promote long-term climate awareness and environmental engagement among young people.

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6.4 Case Study 4 – Circular Economy and Waste Reduction

Case Study	Ljubljana – Europe's First Zero Waste Capital
Country	Slovenia
Organisation	Municipality of Ljubljana & Public Utility Company VOKA
SNAGA	
Initiative	Zero Waste Ljubljana Program
Implementation Period	2014 – Present
Target Group	Citizens, schools, businesses and local communities
Educational Category	Circular Economy and Waste Reduction

Background

In 2014, Ljubljana became the first European capital to officially commit to the Zero Waste strategy, marking a significant milestone in the transition towards a circular economy. Coordinated by the Municipality of Ljubljana in cooperation with the public utility company VOKA SNAGA, the initiative was developed to reduce municipal waste generation, increase separate waste collection and promote responsible resource management through long-term behavioral change.

The program was introduced in response to growing environmental concerns regarding landfill dependency, increasing waste production and inefficient resource use. Rather than relying primarily on waste disposal, Ljubljana adopted a preventive approach centered on reducing waste generation, encouraging reuse and maximizing material recovery. Education and citizen participation were recognized as essential components of the strategy from the outset, ensuring that environmental objectives were supported by sustained behavioral change across the community.

Description of the Initiative

The Zero Waste Ljubljana Program combines infrastructure improvements, public awareness campaigns and community engagement into a comprehensive circular economy strategy.

Key actions implemented include:

- expansion of separate waste collection across the city.
- establishment of reuse centers promoting repair and product reuse.
- introduction of door-to-door collection systems.
- educational campaigns in schools and local communities.
- public workshops promoting waste prevention.
- awareness initiatives encouraging responsible consumption.
- continuous monitoring of municipal waste generation and recycling performance.

Since the program's implementation, Ljubljana has achieved significant progress. The city increased its separate collection rate from approximately 29% in 2008 to more than 68%, while reducing the amount of residual waste sent for disposal by more than 50%. These achievements have positioned Ljubljana among Europe's leading municipalities in circular economy implementation and sustainable waste management.



Feel Green

Why it is Considered Good Practice

The Ljubljana initiative is recognized internationally because it demonstrates that circular economy principles can be successfully implemented through the combination of effective public policy, community participation and continuous environmental education.

Unlike traditional waste management systems that prioritize disposal, Ljubljana places waste prevention at the center of its strategy. Citizens are encouraged to reduce consumption, repair products, separate waste correctly and participate actively in local environmental initiatives. The program therefore combines technical improvements with sustained public engagement, ensuring that behavioral change accompanies infrastructure development.

Its measurable environmental achievements, long-term policy commitment and strong educational dimension have led to international recognition by organizations including Zero Waste Europe and the European Commission, making Ljubljana one of the most frequently cited examples of successful circular economy implementation in Europe.

Educational Value

The Ljubljana case study demonstrates that circular economy education becomes significantly more effective when learners experience sustainability through practical community initiatives rather than theoretical instruction alone.

The initiative illustrates several important educational principles:

- preventing waste before it is generated.
- promoting reuse and repair as sustainable alternatives.
- encouraging shared responsibility for resource management.
- connecting individual behavior with community-wide environmental outcomes.
- demonstrating measurable environmental improvements resulting from collective action.

By presenting circular economy as an everyday practice rather than a technical policy concept, the program enables learners to understand how responsible resource management contributes to environmental sustainability and community wellbeing.

Learning Outcomes

Following analysis of this case study, learners are expected to:

- understand the fundamental principles of the circular economy.
- recognize the importance of waste prevention within sustainable resource management.
- identify practical strategies for reducing waste generation.
- appreciate the value of reuse, repair and recycling within everyday life.
- analyze how community participation contributes to successful circular economy initiatives.
- develop greater awareness of individual responsibility in promoting sustainable resource use.

These learning outcomes strengthen sustainability competences related to systems thinking, responsible resource management and active environmental participation, in line with the FEEL GREEN Educational Framework.



References

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- 2.Municipality of Ljubljana. Environmental Protection and Waste Management Strategy. <https://www.ljubljana.si>
- 3.European Commission. Circular Economy – Best Practice Examples from European Cities. <https://environment.ec.europa.eu>

6.5 Case Study 5 – Community Participation and Active Citizenship

Case Study Overview

Case Study	Sadíme budúcnosť ("We Plant the Future")
Country	Slovakia
Organisation	Nadácia Ekopolis
Initiative	Sadíme budúcnosť (We Plant the Future)
Implementation Period	2019 – Present
Target Group	Local communities, schools, municipalities, NGOs, volunteers and young people
Educational Category	Community Participation and Active Citizenship



Background

Sadíme budúcnosť ("We Plant the Future") is a nationwide environmental initiative launched in 2019 by the Slovak Ekopolis Foundation (Nadácia Ekopolis). The program was established in response to the increasing impacts of climate change on Slovak communities, including prolonged droughts, biodiversity loss, urban overheating and landscape degradation. Recognizing that these challenges require collective rather than individual responses, the initiative was designed to mobilize citizens, municipalities, schools, civil society organizations and volunteers around practical environmental action.

Rather than focusing solely on tree planting, the initiative promotes community participation as a key driver of climate resilience. Local communities are encouraged to identify suitable planting sites, involve volunteers in planning and implementation, and take long-term responsibility for maintaining newly planted trees. Since its launch, the program has become one of Slovakia's largest citizen-led environmental initiatives, supporting hundreds of local projects across the country while strengthening environmental awareness and civic engagement.

Description of the Initiative

The program provides financial support, technical guidance and educational resources to municipalities, schools, non-governmental organizations and community groups wishing to implement local tree-planting and landscape restoration projects.

Participating organizations submit proposals identifying local environmental needs and receive support for purchasing trees, planning planting activities and organizing volunteer events. The program encourages broad community involvement, with local residents, students, youth groups and volunteers participating in every stage of implementation—from site selection and planting to the long-term care of the trees.

Since 2019, the initiative has achieved significant measurable results, including:

- support for more than 400 local planting projects across Slovakia.
- planting of over 120,000 trees and shrubs.
- involvement of thousands of volunteers, including students, youth organizations and local residents.
- cooperation with municipalities, schools, environmental organizations and local businesses.
- restoration of public parks, schoolyards, community spaces, orchards and rural landscapes.]

Beyond the environmental benefits, the program has created opportunities for environmental education, intergenerational cooperation and community dialogue, demonstrating how local environmental action can strengthen both ecological resilience and social cohesion.



Why it is Considered Good Practice

Sadíme budúcnost' is widely recognized as a good practice because it combines environmental restoration with active citizenship and long-term community engagement. Rather than organizing one-off environmental campaigns, the initiative empowers local communities to become responsible for planning, implementing and maintaining their own sustainability projects.

Another important strength of the program is its participatory methodology. Local stakeholders—including municipalities, schools, volunteers, environmental organizations and young people—work together throughout the implementation process. This collaborative approach strengthens community ownership, encourages civic responsibility and increases the long-term sustainability of the environmental interventions.

The initiative also demonstrates how relatively simple local actions can collectively generate significant environmental impact. By restoring green spaces, increasing urban biodiversity and improving climate resilience, the program contributes directly to national climate adaptation objectives while simultaneously promoting environmental education and community participation.

Educational Value

From an educational perspective, Sadíme budúcnost' demonstrates that sustainability education becomes significantly more meaningful when learners actively contribute to improving their own communities. The initiative illustrates how environmental knowledge can be transformed into practical civic engagement through collaboration, shared responsibility and long-term stewardship.

The case study highlights several important educational principles, including:

- community-based experiential learning.
- active participation in environmental decision-making.
- cooperation between schools, municipalities and civil society.
- long-term environmental stewardship.
- collective responsibility for sustainable community development.

Rather than treating environmental protection as an abstract concept, the initiative enables participants to experience the tangible outcomes of their actions while strengthening their sense of belonging and responsibility towards their local environment.

Learning Outcomes

Following analysis of this case study, learners are expected to:

- understand the relationship between community participation and environmental sustainability.
- recognize the role of local communities in climate adaptation and biodiversity protection.
- appreciate the importance of volunteering and civic engagement in addressing environmental challenges.
- develop collaborative planning and project implementation skills.
- identify opportunities for initiating community-based sustainability activities within their own local context.
- strengthen their understanding of active citizenship as a practical component of sustainable development.

These learning outcomes contribute directly to the FEEL GREEN Educational Framework by promoting sustainability competences related to collaboration, responsibility, participation and collective action, while reinforcing the GreenComp principles of agency, cooperation and community engagement.

Transferability to Youth Work

The methodology implemented through Sadíme budúcnosť can be readily transferred to youth work because it is based on participation, collaboration and learning through real-life experience. Although youth organizations may not implement projects of the same scale, the underlying educational approach can easily be adapted to local environmental initiatives.

Youth workers can encourage young people to identify environmental needs within their own communities, organize local tree-planting activities, restore public green spaces, develop biodiversity gardens or collaborate with municipalities and environmental organizations on community improvement projects. Similar approaches can also be applied through volunteering initiatives, youth exchanges, local environmental campaigns and project-based learning activities.

Perhaps the most valuable lesson offered by this initiative is that active citizenship develops through meaningful participation rather than observation. By involving young people in every stage of environmental action—from planning and implementation to long-term maintenance—the program demonstrates how sustainability education can strengthen environmental responsibility, democratic participation and community ownership simultaneously. For this reason, Sadíme budúcnosť represents an excellent example of how community-based sustainability initiatives can inspire youth workers to create educational experiences that combine environmental action with civic engagement.

References

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1. Nadácia Ekopolis. Sadíme budúcnosť (We Plant the Future). <https://www.sadimebuducnost.sk/>
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6.6 Case Study 6 – Digital Sustainability and Green Innovation

Case Study	Luxembourg Science Center – Smart Technologies for Sustainable Learning
Country	Luxembourg
Organisation	Luxembourg Science Center
Initiative	Interactive STEM and Sustainability Education Program
Implementation Period	2017 – Present
Target Group	Students, teachers, youth organizations, families and lifelong learners
Educational Category	Digital Sustainability and Green Innovation



Background

The Luxembourg Science Center, located in Differdange, was officially established in 2017 with the objective of promoting science, technology, engineering and mathematics (STEM) education through interactive and inquiry-based learning experiences. Developed with the support of national institutions, educational partners and the scientific community, the center was created to strengthen scientific literacy while encouraging young people to engage with emerging technologies and contemporary societal challenges.

Recognizing the growing importance of sustainability within European education, the Science Center progressively expanded its educational offer to include exhibitions, laboratories and workshops focusing on renewable energy, environmental technologies, smart cities and sustainable innovation. Rather than presenting scientific knowledge through traditional exhibitions, the Centre enables learners to explore sustainability concepts through experimentation, digital technologies and hands-on problem-solving. Since its opening, the Luxembourg Science Center has welcomed more than 200,000 visitors, hosted hundreds of educational workshops and collaborated with schools, universities and youth organizations across Luxembourg, becoming one of the country's leading institutions for non-formal STEM education.

Description of the Initiative

The educational program of the Luxembourg Science Center combines interactive digital technologies with practical sustainability education. Visitors participate in experiments, simulations and laboratory activities that demonstrate how science and innovation contribute to solving environmental challenges.

Among the principal educational activities are:

- interactive renewable energy laboratories.
- experiments on electricity generation and energy transformation.
- smart technology demonstrations related to sustainable cities.
- robotics and engineering workshops.
- digital simulations exploring environmental systems.
- coding and programming activities connected to technological innovation.
- STEM workshops encouraging creative problem-solving.
- educational events promoting green technologies and sustainable innovation.

The Centre currently offers more than 100 interactive scientific exhibits and numerous laboratory-based workshops designed to encourage participants to investigate scientific phenomena through experimentation rather than passive observation. Sustainability concepts are integrated throughout the educational program, allowing learners to understand how digital technologies can support energy efficiency, environmental monitoring and sustainable development.

Description of the Initiative

The educational program of the Luxembourg Science Center combines interactive digital technologies with practical sustainability education. Visitors participate in experiments, simulations and laboratory activities that demonstrate how science and innovation contribute to solving environmental challenges.

Among the principal educational activities are:

- interactive renewable energy laboratories.
- experiments on electricity generation and energy transformation.
- smart technology demonstrations related to sustainable cities.
- robotics and engineering workshops.
- digital simulations exploring environmental systems.
- coding and programming activities connected to technological innovation.
- STEM workshops encouraging creative problem-solving.
- educational events promoting green technologies and sustainable innovation.

The Centre currently offers more than 100 interactive scientific exhibits and numerous laboratory-based workshops designed to encourage participants to investigate scientific phenomena through experimentation rather than passive observation. Sustainability concepts are integrated throughout the educational program, allowing learners to understand how digital technologies can support energy efficiency, environmental monitoring and sustainable development.

Transferability to Youth Work

The educational methodology employed by the Luxembourg Science Center can be successfully adapted to youth work through the integration of digital technologies into non-formal sustainability education. Although youth organizations may not have access to specialized laboratories, the pedagogical principles of experimentation, inquiry and collaborative problem-solving can be implemented using accessible digital tools and community resources.

Youth workers may organize STEM-inspired sustainability workshops, digital energy simulations, environmental monitoring activities using mobile applications, robotics challenges focused on environmental solutions, citizen science projects and digital storytelling activities promoting sustainable lifestyles. Open-source software, online simulation platforms and low-cost technologies such as programmable microcontrollers or environmental sensors can also be incorporated into educational activities, making innovation accessible to diverse groups of young people.

Perhaps the most valuable lesson offered by this initiative is that digital technologies should not be viewed merely as educational tools but as catalysts for innovation and sustainability. By encouraging young people to explore environmental challenges through experimentation, creativity and technology, youth workers can strengthen both digital competence and sustainability competence simultaneously. The Luxembourg Science Center therefore represents an excellent example of how non-formal education can prepare young people to become active contributors to Europe's digital and green transitions.

References

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7. Recommendations for Youth Workers and Educational Organizations

The FEEL GREEN Handbook has combined documentary research, empirical evidence and practical European good practices to develop an evidence-based framework for sustainability education within youth work. Throughout the previous chapters, the handbook examined the current European policy landscape, analyzed the educational needs of youth workers, identified key sustainability competences and presented practical educational categories together with successful examples of their implementation. Collectively, these findings demonstrate that sustainability education is most effective when it combines knowledge development with practical experience, community engagement and learner-centered educational approaches.

Building upon these findings, this final chapter translates the research evidence into practical recommendations for youth workers, educational organizations and local communities. Rather than introducing new concepts, the chapter synthesizes the principal lessons emerging from the FEEL GREEN research and proposes concrete directions for strengthening sustainability education within non-formal learning environments. The recommendations aim to support the design of more inclusive, participatory and competence-based educational practices while encouraging long-term collaboration between educators, institutions and local stakeholders in advancing Europe's green and digital transitions.

7.1 Overall Conclusions

The FEEL GREEN Handbook was developed with the objective of providing an evidence-based methodological framework capable of supporting sustainability and energy efficiency education within youth work. By combining documentary research, empirical data collection, educational analysis and European good practices, the handbook has explored the current state of sustainability education while identifying practical approaches that can strengthen the capacity of youth workers to address contemporary environmental challenges through non-formal learning.

The findings of the research demonstrate that sustainability education has become an increasingly important priority across Europe. European policy frameworks, including the European Green Deal, the GreenComp European Sustainability Competence Framework and the Sustainable Development Goals, provide a clear strategic direction for integrating sustainability into education systems and lifelong learning. At the same time, the State-of-the-Art Analysis conducted in Greece, Slovakia and Luxembourg revealed that, despite significant policy progress, important gaps remain in the availability of practical educational resources, methodological guidance and professional development opportunities specifically designed for youth workers.



The empirical findings further confirmed these observations. Although participants generally demonstrated a satisfactory understanding of sustainability concepts and recognized the importance of environmental education, the research identified lower levels of confidence regarding the delivery of specialized sustainability topics, particularly those related to energy efficiency and practical environmental action. Respondents consistently expressed the need for accessible educational materials, interactive learning activities, digital educational resources and practical methodologies that could be readily integrated into non-formal education. These findings indicate that the current challenge is no longer to raise awareness of sustainability as a concept, but to strengthen the competences required to translate environmental knowledge into meaningful educational practice

Building upon these findings, the FEEL GREEN Educational Framework transformed the identified educational needs into six interconnected learning categories addressing energy efficiency, sustainable consumption, climate awareness, circular economy, community participation and digital sustainability. Together, these categories provide a coherent pedagogical structure that supports competence-based learning while reflecting the priorities identified through both the documentary research and the empirical survey. Rather than presenting sustainability as a collection of independent environmental topics, the framework promotes an integrated understanding of sustainability that combines knowledge, skills, attitudes and active participation.

The European case studies analyzed throughout this handbook further validated the proposed educational framework by demonstrating that these educational priorities are already being successfully implemented in diverse institutional and community contexts. Despite differences in scale, organizational structure and target groups, all six initiatives shared common educational characteristics, including experiential learning, stakeholder collaboration, learner participation, behavioral change and community engagement. Their success confirms that sustainability education is most effective when learners are actively involved in solving authentic environmental challenges and when educational activities are closely connected to everyday life and local communities.

Overall, the findings of the FEEL GREEN research demonstrate that effective sustainability education requires a holistic and learner-centered approach that extends beyond environmental knowledge alone. Preparing young people for the green transition involves developing critical thinking, collaboration, responsibility, creativity and active citizenship alongside practical sustainability competences. Youth workers therefore play an increasingly important role as facilitators of transformative learning experiences that empower young people to become informed, engaged and responsible contributors to sustainable development.

Ultimately, this handbook demonstrates that sustainability education should be understood as a continuous process of learning, participation and innovation. By integrating scientific evidence, educational research and practical European experiences, the FEEL GREEN project provides youth workers and educational organizations with a comprehensive methodological foundation capable of supporting high-quality sustainability education across diverse non-formal learning environments. The recommendations presented in the following sections build upon this evidence and propose practical directions for further strengthening sustainability education within youth work, educational organizations and local communities.

7.2 Educational Implications for Youth Work

The findings presented throughout the FEEL GREEN Handbook suggest that the role of youth workers in sustainability education is undergoing a significant transformation. As environmental challenges become increasingly interconnected with social, economic and technological developments, youth workers are expected to move beyond their traditional role as facilitators of learning activities and become key actors in supporting young people to develop the competences required for sustainable living and active citizenship. Sustainability education therefore requires youth workers to adopt more holistic, participatory and competence-oriented educational approaches that respond to the complex realities facing contemporary European societies.

One of the principal implications emerging from the research is the need to shift from knowledge-centered teaching towards competence-based learning. The documentary research, empirical findings and European case studies consistently demonstrated that awareness alone does not necessarily result in behavioral change. Consequently, youth workers should prioritize educational experiences that enable young people to apply sustainability concepts in authentic contexts, encouraging critical reflection, collaborative problem-solving and practical experimentation. Experiential learning methodologies, project-based activities, community engagement and reflective practice should therefore become central components of sustainability education within youth work.

The research also highlights the growing importance of interdisciplinary learning. Sustainability cannot be effectively addressed through environmental education in isolation but should be connected with topics such as active citizenship, digital innovation, responsible consumption, social inclusion and community development. Youth workers are therefore encouraged to design learning experiences that recognize the interconnected nature of sustainability challenges while helping young people understand the relationships between environmental, social and economic dimensions of sustainable development.

Another important implication concerns the integration of digital technologies into non-formal education. The survey findings demonstrated strong interest in digital learning platforms, interactive educational resources and technology-supported learning environments. At the same time, the case studies illustrated how digital tools can enhance participation, collaboration and innovation when used as pedagogical instruments rather than simply as communication technologies. Youth workers should therefore be supported in developing both digital competence and pedagogical confidence to integrate online platforms, interactive applications and digital learning resources into sustainability education in meaningful and learner-centered ways.

The handbook further demonstrates that sustainability education is strengthened through partnerships and community engagement. Effective learning frequently extends beyond educational settings and involves cooperation with municipalities, schools, environmental organizations, businesses and local communities. Youth workers should therefore increasingly adopt the role of facilitators of community learning, creating opportunities for young people to participate in local sustainability initiatives, volunteer activities and collaborative projects that address real environmental challenges while strengthening civic participation and social responsibility.

Finally, the research emphasizes the importance of continuous professional development. As sustainability policies, environmental challenges and educational methodologies continue to evolve, youth workers require regular opportunities to update their knowledge, exchange good practices and develop new competences. Lifelong learning, peer learning and participation in European cooperation initiatives represent important mechanisms for strengthening the quality and long-term impact of sustainability education within youth work.

Taken together, these implications reinforce the vision of youth work promoted throughout the FEEL GREEN project: one in which youth workers act not simply as educators, but as facilitators, mentors, community connectors and agents of sustainable change. By adopting competence-based, participatory and evidence-informed educational practices, youth workers can support young people in becoming active contributors to more sustainable, resilient and inclusive communities while responding effectively to the priorities of Europe's green and digital transitions.

7.3 Recommendations for Youth Workers

Youth workers play a central role in supporting young people to develop the knowledge, competences and values required for sustainable development. The findings of the FEEL GREEN research indicate that effective sustainability education is achieved through learner-centered methodologies, practical engagement and strong connections with local communities. Based on the evidence gathered throughout this handbook, the following recommendations aim to support youth workers in designing and implementing high-quality sustainability education within non-formal learning environments.

1. Integrate sustainability into everyday youth work activities

Sustainability should not be approached as an isolated educational topic or occasional project. Instead, environmental responsibility can be incorporated into regular youth activities by connecting sustainability principles with everyday experiences, community issues and participants' daily decision-making.

2. Prioritize experiential and participatory learning

Young people develop sustainability competences most effectively through active participation. Youth workers are encouraged to use experiential learning methods such as simulations, role-playing, project-based learning, field activities, environmental audits and community initiatives that allow participants to apply knowledge in real-life situations.

3. Focus on competence development rather than knowledge acquisition alone

Educational activities should move beyond raising environmental awareness towards developing practical competences. Learning should strengthen critical thinking, collaboration, creativity, problem-solving and responsible decision-making alongside environmental knowledge, in accordance with the GreenComp framework.

4. Encourage local action and community engagement

Youth workers should provide opportunities for young people to participate actively in their local communities through volunteering, environmental campaigns, partnerships with local organizations and community-based sustainability projects. Such experiences strengthen both active citizenship and long-term environmental responsibility.

5. Make effective use of digital educational tools

Digital technologies should be integrated as learning tools that support collaboration, creativity and interactive learning. Online learning platforms, digital simulations, multimedia resources and collaborative applications can significantly enrich sustainability education when used with clear pedagogical objectives.

6. Promote interdisciplinary learning

Sustainability education should connect environmental issues with social inclusion, health, citizenship, entrepreneurship, digital innovation and community development. Interdisciplinary learning helps young people understand the complex and interconnected nature of sustainability challenges.

7. Create inclusive learning environments

Educational activities should encourage the participation of young people from diverse backgrounds, ensuring equal opportunities for engagement regardless of gender, cultural background, educational level or previous experience with sustainability topics. Inclusive participation strengthens both learning outcomes and community cohesion.

8. Encourage reflection and continuous self-evaluation

Reflection should become an integral part of every educational activity. Youth workers should encourage participants to evaluate their learning, examine changes in their attitudes and behaviors and identify personal actions that contribute to more sustainable lifestyles.

9. Continuously update professional competences

Given the rapidly evolving nature of sustainability education, youth workers should actively engage in lifelong learning by participating in professional training, European projects, peer-learning opportunities and networks that facilitate the exchange of innovative educational practices.

10. Act as facilitators of sustainable change

Youth workers should view themselves not only as educators but also as facilitators, mentors and community leaders who inspire young people to become active contributors to sustainable development. By modelling sustainable behaviors and encouraging collaboration, youth workers can create educational environments that foster long-term environmental responsibility and civic engagement.

The recommendations presented above reflect the principal findings of the FEEL GREEN research and are closely aligned with the GreenComp European Sustainability Competence Framework and contemporary approaches to non-formal education. Their implementation can support youth workers in creating engaging, inclusive and competence-based learning experiences that empower young people to participate actively in Europe's green and digital transitions.

7.4 Recommendations for Educational Organizations

Educational organizations play a fundamental role in creating the conditions necessary for high-quality sustainability education. While youth workers are responsible for facilitating learning, organizations provide the strategic direction, institutional support and resources that enable sustainability initiatives to flourish. The findings of the FEEL GREEN research demonstrate that organizations committed to sustainability are more likely to foster innovative educational practices, strengthen professional development and establish meaningful partnerships within their communities. Based on the evidence gathered throughout this handbook, the following recommendations are proposed for educational organizations seeking to strengthen sustainability education within non-formal learning environments.

1. Embed sustainability within organizational strategies

Educational organizations should integrate sustainability into their mission, strategic planning and long-term objectives rather than treating it as a stand-alone project. Institutional commitment ensures that sustainability becomes a continuous priority influencing educational planning, organizational culture and decision-making.

2. Invest in continuous professional development

Organizations should provide regular training opportunities enabling youth workers and educators to strengthen their knowledge of sustainability, energy efficiency, GreenComp competences and innovative non-formal education methodologies. Continuous professional development contributes directly to the quality and effectiveness of educational activities.

3. Develop high-quality educational resources

Access to practical, evidence-based educational materials remains one of the needs most frequently identified through the FEEL GREEN research. Organizations should therefore invest in developing and updating toolkits, lesson plans, digital resources, interactive activities and methodological guides that support youth workers in delivering engaging sustainability education.

4. Strengthen partnerships and multi-stakeholder cooperation

Sustainability education benefits significantly from collaboration. Educational organizations are encouraged to establish partnerships with municipalities, schools, universities, environmental organizations, businesses and community groups in order to expand learning opportunities, exchange expertise and maximize educational impact.

5. Promote learner-centered educational methodologies

Educational programs should prioritize participatory approaches that encourage collaboration, experimentation, project-based learning and active community engagement. Organizations should create supportive environments where innovative pedagogical methods are encouraged and regularly evaluated.

6. Integrate digital innovation into sustainability education

Digital technologies should be recognized as valuable educational tools capable of enriching sustainability learning. Organizations are encouraged to invest in digital learning platforms, online collaboration tools, multimedia educational resources and blended learning opportunities that enhance accessibility and learner engagement.



7. Monitor and evaluate educational impact

Systematic monitoring and evaluation enable organizations to assess the effectiveness of sustainability education initiatives and identify opportunities for continuous improvement. Evaluation should consider not only participation rates but also competence development, behavioral change and community impact.

8. Foster an organizational culture of sustainability

Educational organizations should lead by example by implementing sustainable practices within their own operations. Measures such as responsible energy management, waste reduction, sustainable procurement and environmentally responsible event management reinforce the credibility of sustainability education and demonstrate institutional commitment.

9. Encourage innovation and knowledge exchange

Organizations should actively participate in national and European networks, research initiatives and cooperation projects that promote the exchange of good practices in sustainability education. Collaboration with other organizations facilitates innovation, professional learning and the continuous improvement of educational methodologies.

10. Support long-term sustainability beyond individual projects

Sustainability education should extend beyond the lifetime of individual funded initiatives. Organizations are encouraged to develop long-term sustainability strategies that ensure educational resources, partnerships and methodologies remain available and continue to benefit future generations of young people and educators.

Educational organizations play a decisive role in shaping the quality, accessibility and long-term sustainability of non-formal education. By adopting these recommendations, organizations can create supportive environments that empower youth workers, strengthen community partnerships and promote competence-based sustainability education aligned with European priorities. In doing so, they contribute not only to the professional development of educators but also to the broader objective of preparing young people to participate actively in Europe's green and digital transitions.



7.5 Recommendations for Local Communities

Local communities play a vital role in creating supportive environments where sustainability education can move beyond educational settings and become part of everyday life. Municipalities, civil society organizations, educational institutions, local businesses and community groups all contribute to shaping opportunities for young people to participate actively in sustainability initiatives. The findings of the FEEL GREEN research demonstrate that long-term environmental awareness and behavioral change are strengthened when learning is closely connected to local needs, community participation and collaborative action. Based on the evidence gathered throughout this handbook, the following recommendations are proposed to support local communities in fostering meaningful sustainability education and active youth engagement.

1. Encourage meaningful youth participation in local decision-making

Local communities should actively involve young people in the planning, implementation and evaluation of sustainability initiatives. Creating opportunities for participation in local environmental projects, consultations and community planning processes strengthens democratic engagement and promotes a sense of ownership and responsibility.

2. Build strong partnerships between local stakeholders

Sustainability education is most effective when municipalities, schools, youth organizations, environmental NGOs, universities and local businesses work collaboratively towards shared objectives. Cross-sector partnerships create opportunities for knowledge exchange, resource sharing and the development of innovative educational initiatives that benefit the wider community.

3. Support community-based environmental initiatives

Local authorities and community organizations should encourage practical environmental actions such as tree planting, biodiversity restoration, neighborhood clean-up campaigns, sustainable mobility initiatives, recycling programs and community gardening projects. Such initiatives provide young people with authentic learning experiences while generating visible environmental improvements.

4. Increase access to sustainability learning opportunities

Communities should ensure that sustainability education is accessible to all young people by supporting workshops, public events, awareness campaigns, volunteering opportunities and lifelong learning activities. Particular attention should be given to reaching young people from disadvantaged or underrepresented groups to promote inclusive participation.

5. Promote environmental volunteering and civic engagement

Volunteering represents an effective pathway for developing sustainability competences and strengthening community cohesion. Local communities are encouraged to establish volunteer programs that enable young people to contribute to environmental protection while developing teamwork, leadership and active citizenship skills.

6. Use public spaces as learning environments

Parks, forests, community centers, cultural venues and public spaces provide valuable opportunities for experiential sustainability education. Outdoor learning activities, environmental observation, citizen science projects and local sustainability events help connect environmental knowledge with everyday community life.



7. Encourage responsible environmental behavior through awareness campaigns

Public communication campaigns should focus not only on raising awareness but also on encouraging practical behavioral change. Communities can promote sustainable lifestyles by sharing examples of good practice, recognizing local sustainability initiatives and celebrating the achievements of citizens, schools and youth groups actively contributing to environmental protection.

8. Support innovation and digital participation

Communities should encourage the use of digital technologies that strengthen environmental education, civic participation and community collaboration. Online platforms, digital mapping tools, citizen science applications and interactive communication channels can expand opportunities for young people to participate in sustainability initiatives and contribute innovative ideas.

9. Recognize and celebrate local sustainability achievements

Acknowledging successful environmental initiatives, youth-led projects and community partnerships encourages continued participation and inspires others to become involved. Awards, public recognition events and local dissemination activities help strengthen community motivation while promoting positive environmental role models.

10. Foster a culture of long-term sustainability

Sustainability should become a shared community value rather than a series of isolated projects. Local communities are encouraged to adopt long-term strategies that integrate environmental responsibility into community development, public participation and local planning processes. Sustained commitment helps ensure that educational initiatives continue generating positive environmental and social impacts beyond individual funding periods.

Strong local communities are essential partners in achieving the objectives of sustainability education. By creating inclusive opportunities for participation, supporting collaborative environmental action and encouraging lifelong learning, communities can empower young people to become active citizens capable of contributing to sustainable local development. The recommendations presented above reinforce the importance of shared responsibility and demonstrate that meaningful sustainability education is achieved most effectively when schools, organizations, public authorities and citizens work together towards common environmental goals.

7.6 Future Directions for Sustainability Education

Sustainability education is expected to play an increasingly significant role in shaping Europe's response to environmental, social and technological challenges over the coming decades. As the European Union continues to advance the objectives of the European Green Deal, the Climate Neutrality Agenda and the Digital Decade, education will remain one of the principal mechanisms for supporting the transition towards more sustainable, resilient and inclusive societies. Consequently, sustainability education must continue evolving beyond traditional environmental awareness towards the development of practical competences that enable individuals and communities to actively contribute to sustainable development.

One of the most important future directions concerns the continued adoption of competence-based education. European frameworks such as GreenComp increasingly emphasize the importance of developing systems thinking, critical reflection, collaboration, futures literacy and responsible action alongside subject-specific knowledge. Future educational programs are therefore expected to place greater emphasis on learners' ability to analyze complex sustainability challenges, evaluate alternative solutions and participate actively in environmental decision-making rather than simply acquiring theoretical information.

Another important development is the growing integration of digital technologies into sustainability education. Digital learning platforms, virtual simulations, citizen science applications, artificial intelligence, data visualization tools and interactive educational resources are creating new opportunities for engaging young people in environmental learning. When combined with learner-centered pedagogical approaches, these technologies can strengthen accessibility, encourage collaboration and support personalized learning experiences that respond to diverse educational needs. At the same time, educators will need to ensure that digital innovation is accompanied by ethical, inclusive and environmentally responsible approaches to technology use.

The research presented throughout this handbook also highlights the increasing importance of community-based and participatory learning. Future sustainability education is likely to move beyond classroom-centered approaches by encouraging learners to engage directly with local environmental challenges through volunteering, community partnerships, citizen science initiatives and collaborative problem-solving. Such approaches strengthen active citizenship while helping young people recognize their capacity to contribute meaningfully to sustainable development within their own communities.

Interdisciplinary learning is expected to become another defining characteristic of future sustainability education. Environmental issues are increasingly interconnected with topics such as public health, social inclusion, entrepreneurship, digital transformation and economic resilience. Educational programs will therefore need to encourage learners to explore sustainability from multiple perspectives while recognizing the complex relationships between environmental, social and economic systems. This integrated perspective will become increasingly important for preparing young people to address emerging global challenges.



The findings of the FEEL GREEN project further suggest that youth workers will continue to play an increasingly strategic role within Europe's sustainability agenda. As facilitators of non-formal education, they are uniquely positioned to create inclusive learning environments that promote participation, innovation and lifelong learning. Supporting youth workers through continuous professional development, access to high-quality educational resources and opportunities for international cooperation will therefore remain essential for ensuring the long-term quality and effectiveness of sustainability education.

Looking ahead, stronger cooperation between educational institutions, local authorities, civil society organizations, research institutions and the private sector will also become increasingly important. Addressing sustainability challenges requires coordinated action across multiple sectors, and education can serve as a catalyst for strengthening these partnerships while encouraging knowledge exchange and collaborative innovation. Future initiatives should therefore continue promoting cross-sector cooperation capable of generating long-term educational, environmental and social impact.

Ultimately, the FEEL GREEN Handbook represents more than a methodological guide developed within the framework of a European project. It provides a practical and evidence-based contribution to the ongoing evolution of sustainability education within youth work. By combining scientific research, empirical evidence, educational design and European good practices, the handbook offers a methodological foundation that can continue supporting educators, organizations and communities beyond the duration of the project.

As sustainability continues to shape European educational priorities, the principles presented throughout this handbook are expected to remain highly relevant for future educational practice. By fostering competence-based learning, encouraging innovation, strengthening community participation and supporting lifelong learning, youth workers and educational organizations can contribute significantly to preparing young people for the opportunities and responsibilities associated with Europe's green and digital transitions. In this way, sustainability education becomes not only a response to current environmental challenges but also a long-term investment in more resilient, inclusive and sustainable communities for future generations.





Feel Green

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Empowering Youth to Start a
Green Revolution

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