

Best Practice Handbook on Green Skills integration in VET



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About RetroVET

This project is funded by the Erasmus+ programme of the European Union.

Consortium

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CWEP, Poland
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Lovila, Cyprus
LABC, Italy
MEUS, Spain
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Introduction

Throughout the European Green Deal, education is a central component to achieving the EU's climate targets, in the ambition to achieve climate neutrality by 2050 (Green Comp, 2020). The need to transition towards more environmentally sustainable modes of production and consumption has become imperative, for developed as well as for developing countries (UNESCO, 2017). Sustainable Development Goal 9 includes the target of upgrading infrastructure and retrofitting industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes by 2030. Sustainable Development Goal 12 includes the target of achieving the sustainable management and efficient use of natural resources by 2030. The transition to a low-carbon, resource-efficient economy requires systemic changes that will result not only in new products and services but also in changes in production processes and business models (UNESCO, 2017). This greening of the economy will inevitably change the skills required and the tasks involved in many of the existing occupations (European Commission, 2020). Moving towards a low carbon economy will create more than 1 million jobs by 2030, and what is more, industrial transitions will require reskilling and upskilling more than 120 million Europeans in the next five years (European Commission, 2020).

The RetroVET project aims to:

1. Contribute to develop and promote a green culture among VET establishments
2. Close the green skills gap between VET centres that have successfully adopted green skills implementation practices, by facilitating the integration of amongst VET centres which have not embraced ICT practices
3. Develop a collaborative European Green Skills VET peer mentoring and performance improvement tool/framework

4. Capitalise on existing European vocational training networks multiplier structures and regional hubs to mainstream ICT skills change in VET centres across Europe
5. Promote and facilitate green skills learning through cross-curricular collaboration and remote peer-to-peer learning amongst European VET centres, practitioners, and wider stakeholders

Purpose and Methodology

This handbook provides a compilation of best practices and case studies on integrating a green strategy within vocational education and training institutions and other education institutions. This document provides a catalogue of best practices for education and training staff and practitioners to refer to when considering the implementation of green skills support strategies. As well as promoting green skills this document aims to provide inspiring examples through case studies to support VET centres in the creation of their own bespoke approach to incorporating the green skills elements in their own VET provision, based on their specific needs.

The Green Elements:

1. **Green VET Strategy** - The focus of a green strategy is to ensure that vocational education and training centres can deliver their full potential on a sustainable basis.
2. **Green VET Approach** – The green education and training approach is the methodologies and tools used to incorporate environmental and sustainability awareness into existing vocational training, through redesign and adaptation.
3. **Green VET Skills and Knowledge** – The green skills and knowledge relates to the extent to which both learners and staff are aware of and understand the green skills and knowledge relating to their area of expertise or area of study.

After defining these elements, the consortium prepared a questionnaire for vocational education and training centres and practitioners who have experience in implementing a green strategy. The questionnaire (Annex 1) provided the means through which partners gathered best practices in implementing green strategies, linked to the green elements above. The questionnaire was linked to the structure of this handbook and covers best practices in the key aspects of implementing a green strategy within a vocational education and training centre:

1. Strategy integration and change management
2. Incorporating the green approach in VET delivery
3. Pan-European mutually collaborative green approach professional development schemes
4. Facilitating the uptake of Green Skills and Knowledge among learners

5. Financing the integration of Green Elements for existing VET centres
6. Green Elements case studies

After the best practices were gathered the most commonly occurring themes from within the qualitative responses from the respondents of the questionnaires across the 7 partner countries were analysed to create a core set of best practices. These commonly occurring best practices were then categorised into nine thematic areas, which cut across all the green elements, and the different aspects of a green strategy integration:

1. Policy and Governance
2. Sustainable Behaviour
3. Accurate Accessible Information
4. Education and Training
5. Promotion and Awareness
6. Professional Development
7. Future Workforce
8. Human and Financial Resources
9. Stakeholder Engagement and Buy-In

These themes are useful to be able to categorise key areas within the green strategy integration and implementation process, but also will allow the consortium to develop the benchmarking guidelines through which the second project result, the interactive green VET benchmarking tool, will be developed.

List of Best Practices

Below is the list of best practices gathered through this document and analysis.

Best Practice	Thematic Area
Present information in an accessible, easy to access location for all staff and students.	Accurate Accessible Information
Support students to keep up to date with green skills policy, initiatives, and updates by sharing and promoting relevant accessible information.	Accurate Accessible Information
Capitalise on the green strategy by using it as a platform to raise awareness of broader European and global issues.	Accurate Accessible Information
Consistently review and actively adapt vocational education and training provision based on policy developments.	Education and Training
Draw inspiration from existing programs and frameworks to adapt VET provision relating to learners' environmental awareness and green skills.	Education and Training

Preparation of new modules, courses or programmes to support and encourage the development of green and soft skills for the professional development of learners.	Education and Training
Promote and apply sustainability, environmental awareness and green skills as a cross-cutting theme.	Education and Training
Promote green skills by ensuring the proper integration and articulation of environmental topics in vocational education and training programmes.	Education and Training
Promote careers and professions which require the green skills of the future workforce.	Future Workforce
Work closely with network organisations and local/regional partners on issues relating to green skills and where necessary, advise on environmental issues related to the VET sectors.	Future Workforce
Incorporate the use of relevant technology to complement traditional teaching tools and methodologies where it adds value.	Future Workforce
Dedicated team to manage the green strategy.	Human and Financial Resources
Sufficient financial resources to implement, maintain and maximise the potential of a green strategy.	Human and Financial Resources
Ensuring availability of the required human resources and knowledge to implement a green strategy across all levels.	Human and Financial Resources
Align with national and European sustainability strategies as well as the United Nations Sustainable Development Goals (SDGs).	Policy and Governance
Generate economic savings through the implementation of a green strategy infrastructure.	Policy and Governance
Green strategy is defined by clear objectives and expected outcomes and impact at short, medium and long term.	Policy and Governance
Dedicated framework to ensure good practices are applied and encouraged and lessons learned are shared and built on.	Professional Development
Assessment process to understand gaps in provision, areas of strength and existing knowledge prior to implementing the green strategy.	Professional Development
Support teachers/trainers to keep up to date with green skills policy, initiatives, and updates by sharing and promoting relevant accessible information.	Professional Development

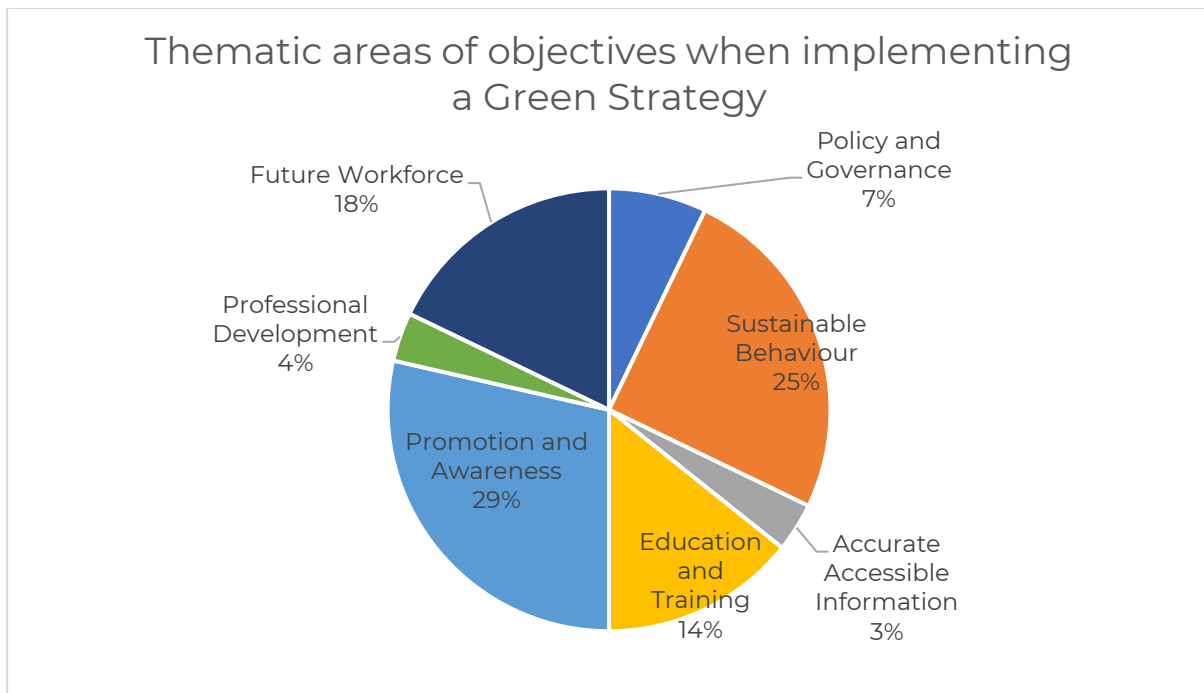
Allow green strategy to be led by local, national and European directives related to green policy, and adapt the strategy to your specific context and stakeholders.	Promotion and Awareness
Involve local and regional stakeholders and environmental partners in hands-on vocational training initiatives.	Promotion and Awareness
Plan or attend promotional events and activities related to environmental and sustainability issues.	Promotion and Awareness
Involve learners and staff in the evolution and development of the green strategy.	Stakeholder Engagement and Buy-In
Empower and facilitate trainers to challenge existing bias and educate less-informed perspectives on environmental issues through practical examples.	Sustainable Behaviour
Enforce positive actions in terms of saving resources, reusing and recycling, using low energy lighting and power saving equipment, etc.	Sustainable Behaviour
Ensure the means and systems are in place to measure and verify behaviour change among staff and learners.	Sustainable Behaviour

Part 1. Green VET Strategy integration and change management

To gather best practices around green strategy integration and change management, respondents were asked to provide:

- Key objectives of a green strategy
- Perceived and expected benefits of a green strategy
- Challenges to implementation

Thematically, the responses in this section were broad.



Most respondents had the intention to provide guidance on how to work and act in a sustainable way – a fundamental part of the ensuring the success of a green strategy.

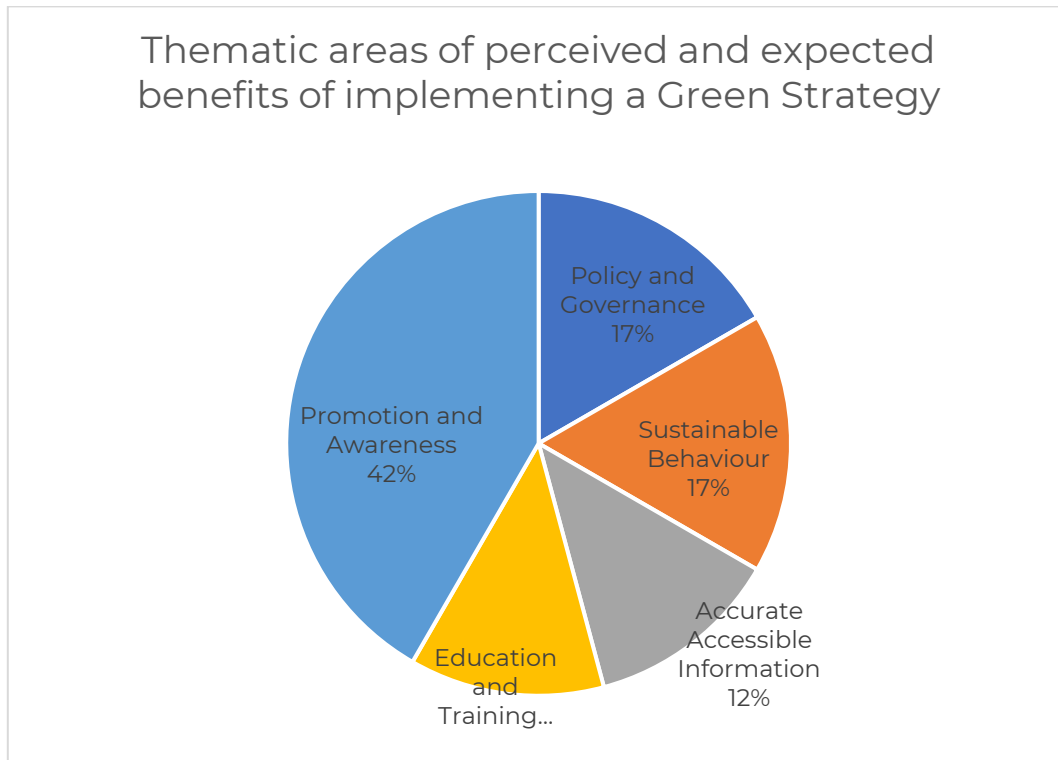
Within the area of education and training, respondents expected the green strategy would incorporate sustainability in training activities, facilitate green skills and environmental awareness, activate educational processes that stimulate a new pattern of thinking. These objectives were applied to all stakeholders within VET centres. Other motivations were to support wider personal development and growth and enhance existing green skills of both learners and VET practitioners.

Objectives linked to the future workforce and green jobs covered included being responsive to current and future social, economic, and environmental challenges and to provide a clear pathway to future jobs. Some responses referred to gaining a competitive advantage within the VET sector.

Relating to the theme of policy and governance almost all respondents had the objective to align with national and European sustainability strategies as well as the United Nations Sustainable Development Goals (SDGs) and contribute to the sustainable and environmental targets.

The motivations around promotion and awareness of environmental and sustainability issues were broad. Institutions intend to raise awareness and promote positive behaviour among learners and encourage an inclusive and holistic outlook in analysing problems and identifying answers to cross-cutting environmental and vocational training issues by supporting VET centre staff and learners to feel involved in European and national policy initiatives. Other respondents cited positive behaviour changes among stakeholders and the creation of a call-to-action around sustainable approaches and the environment.

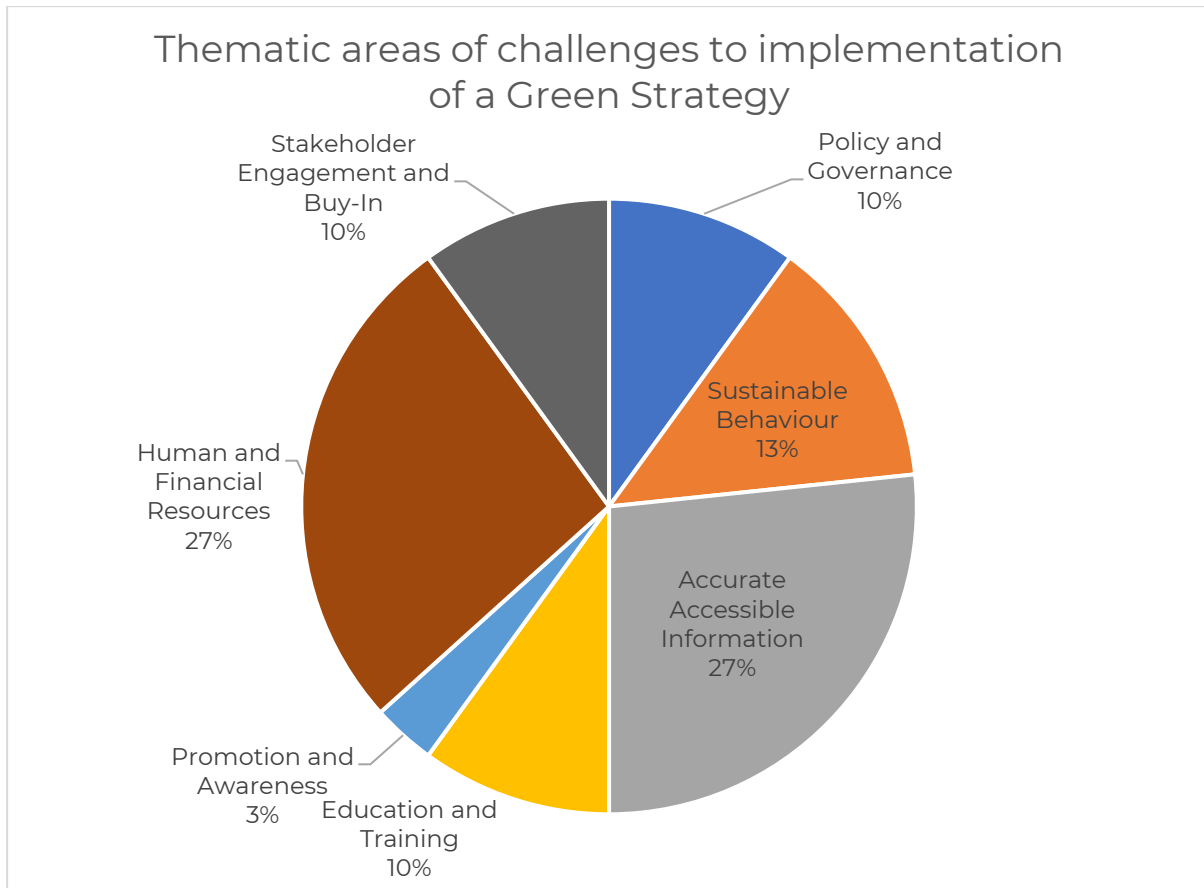
In terms of sustainable behaviour VET centres aims are to integrate sustainable strategies beyond education and training environments and into staff and learners' daily lives.



What is interesting about the perceived benefits are that they predominantly convey relatively early-stage benefits of a green strategy such as economic benefits, perception of the VET centre, increasing awareness and providing accurate information to stakeholders.

Although it can be argued that several of the benefits can also be realised in other specific aspects of a green strategy implementation, it is arguably reflective of the current state of environmental and sustainable awareness within the vocational education and training sector that Future Workforce, Professional Development and Stakeholder Buy-In is not mentioned.

The challenges to implementation highlighted through the stakeholder feedback interestingly reflected many of the opposite thematic areas than that of the perceived benefits.



The main concerns around implementation centred on human and financial resources, with respondents raising such challenges as initial outlay on and changes or improvements to existing infrastructure and cost of environmentally friendly equipment. In nearly all countries, the respondents highlighted a lack of funding opportunities and financial support from government as well as organisational financial constraints when adopting green strategy.

Other challenges faced by VET centres were the time-consuming preparation of rules and regulations and the additional workload of activities which fall beyond business as usual. One respondent mentioned that a change management process is a specialised area which many organisations do not have large expertise in, which has the potential to undermine the entire process if done incorrectly.

Stakeholders buy-in was mentioned heavily with lack of initial engagement from the VET staff and learners and a general lack of interest in such a strategy, particularly among certain learner groups such as the elderly. This highlights the need for meaningful involvement to combat disinterest and ensure the green strategy as a systemic feature – both challenges in themselves.

Changing people's habits at the beginning of the process was a key concern, which could lead to a lack of willingness to change a way of thinking and behaviour to contribute to the approach.

In identifying the most important consideration when integration a Green Strategy, all thematic areas were covered by the responses.

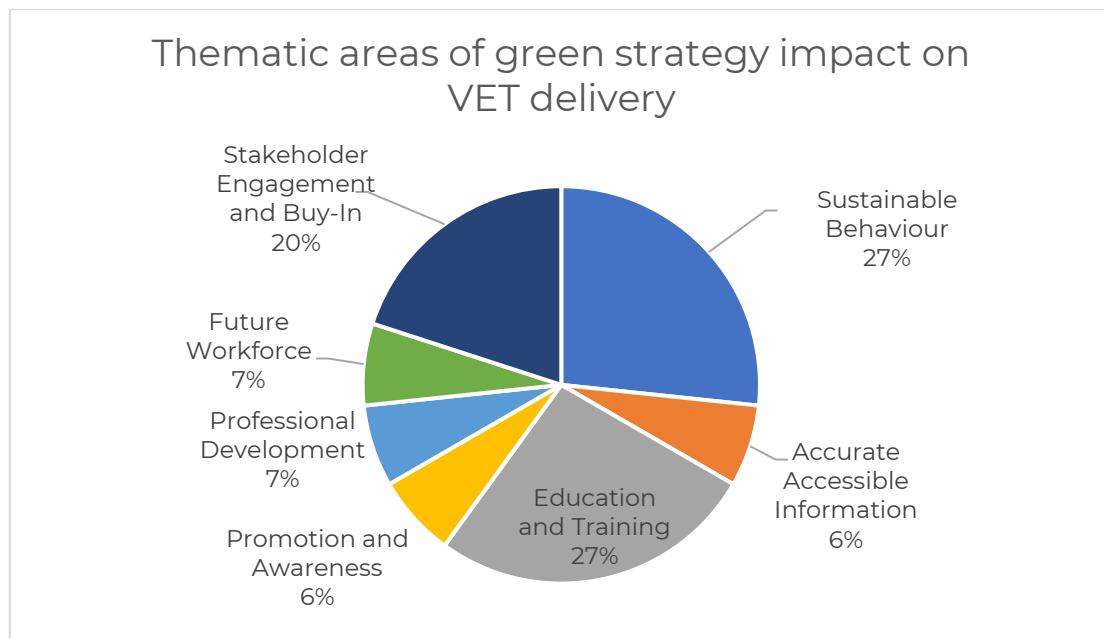
Thematic Area	Key Considerations
Accurate Accessible Information	Awareness of existing initiatives and best practices
	Removal of the concept of sustainability as a scientific issue only addressed by experts
	Measures which bring the biggest advantage based on the available resources of the institute
	Strategy approaches which are important but less effective in certain settings
Education and Training	Education of the green strategy and sustainability
Future Workforce	How a strategy can transition to green skills in practice?
Human and Financial Resources	Costs of implementation of the strategy
	Whether the financial means to prioritise a Green Strategy and a sustainable approach to work are available
	Time and resources needed for preparation of the strategy and how it is communicated within the organisation
Policy and Governance	Support and funding
	Clear objectives and expected impact
	How to define the strategy at several levels (experts to design, technicians to implement, and actors to influence the change of habits and philosophy of life)
	The persons responsible for designing, implementing, and supervising the green strategy
Professional Development	Level of green awareness of the centre staff and learners when the green strategy is implemented – where do we start from?
	Whether special trainings are needed for VET practitioners
	Proper integration and articulation of environmental topics in VETs' pedagogical national and local approach and continuous training and update on these matters
Promotion and Awareness	“Settling in” period for staff and learners to digest and understand the changes and purpose
Stakeholder Engagement and Buy-In	Adaptation of the green strategy to the particularities of each VET centre and the region where is it located, taking into consideration the ways in which to involve local stakeholders from outside the VET centre
	Whether the employees and learners willing to contribute
Sustainable Behaviour	Organic uptake by learners
	Understand that the green strategy goes beyond the ecological approach that has been talked about in recent decades: it is now a question of promoting a real cultural paradigm shift
	Ways of verifying sustainable behaviour

Part 2. Incorporating the Green Approach in VET delivery

Regarding the best practices around incorporating a green approach into the delivery of vocational education and training, respondents were asked to provide:

- Impact on VET delivery
- Ways VET practitioners can support implementation
- Challenges for VET practitioners

The thematic responses for the impact of a green strategy on delivery is summarised by the pie chart below.



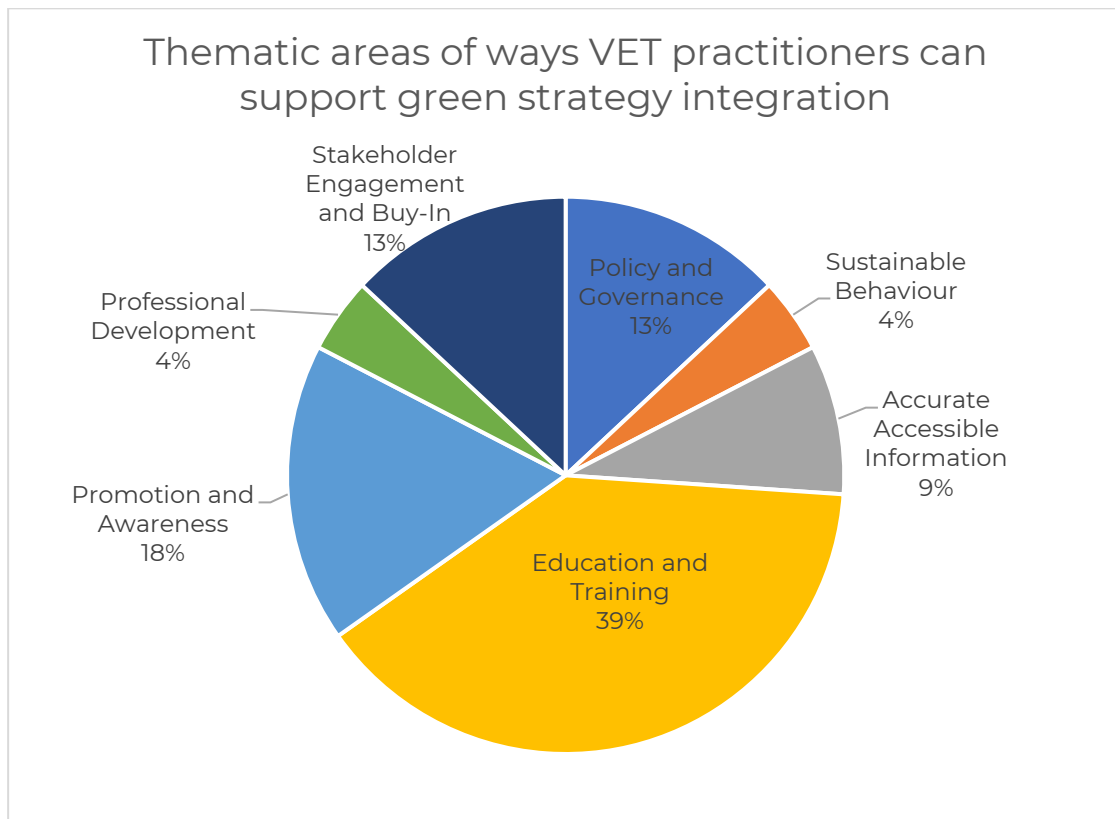
The responses highlighted the promotion of a more sustainable vision for students within their specific education and training spheres, which in turn encourages learners to deal with a new situation regarding industry environmental policy, or changing public perspective on environmental issues, for example as well as improved and greater understanding of ecological issues and awareness of climate change for both trainers and learners.

Integration of a green strategy in VET provision requires significant changes in many aspects of pedagogical delivery, but also encourages teachers to find innovative means of conducting lessons including practices that may have been rejected previously.

Relating to education and training, respondents replied that green strategies generally have a positive effect on learners' relationship with school and learning, as it provides an opportunity to carry out their work creatively rather than monotonously, as well as for individual contributions and suggestions for improvement.

Engagement and buy-in is a key aspect of adapting pedagogical delivery as a green strategy not only generates interest, motivation, and involvement and responses show learners are more involved in the organisational process when a green strategy is implemented. One respondent highlighted that their centre receives acknowledgment as a green practices' booster, improving its corporate image and the environment as well as the relationship with local environmental-focused stakeholders.

In terms of adopting a sustainable mindset, the implementation of a green strategy fosters the acquisition of tools and approaches of thought and action as learners become both bearers and promoters of cultural change. In addition, VET staff and learners tend to become aware of the importance of integrating green practices into their daily lives, at a professional and social level, which leads to behavioural changes such as adapting behaviour and consumerism and developing and increasing their own awareness of environmental issues.



Expectedly, the key theme of VET practitioners supporting green strategy integration to Education and Training. The general message from this section is that VET practitioners play a key role in the successful implementation of a green strategy.

VET practitioners support green strategy integration by ensuring learners receive training activities, academic or extracurricular, related to a development model based on more sustainable practices. This includes adapting existing training programs, preparing new training materials, and delivering vocational training from sustainable

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perspectives. In some cases, depending on the capacity of the trainer, scope of the course and resources of the centre, the use of technology to replace traditional teaching tools and methods can support a wider green strategy. Practitioners can also take a cross-cutting approach in each of their academic disciplines, bringing together all perspectives to provide a broader sustainable mindset within the pedagogical branch of the centre. The adaptation of existing programs and frameworks can include questions of sustainability.

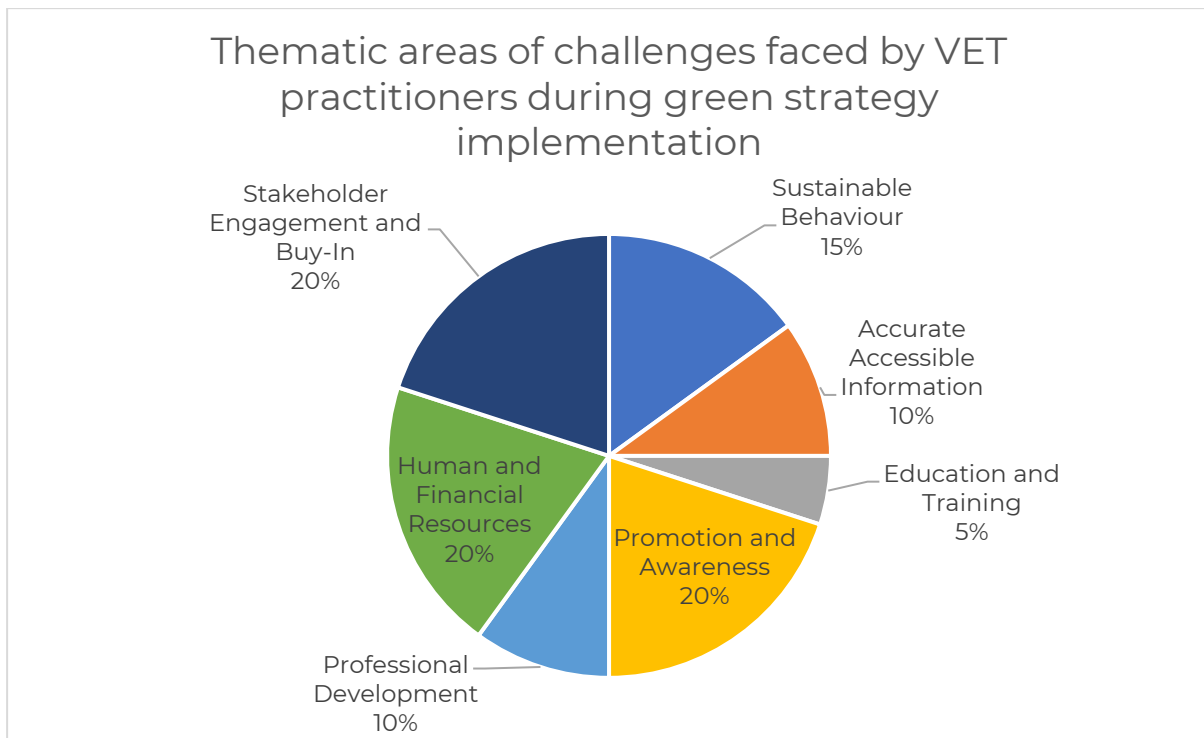
Several policy and governance aspects are also deemed important to VET practitioners being able to adopt the strategy in every aspect of a centre's educational function: the planning of activities, choice of methodologies, sharing of content. It is advised that a permanent team responsible for ensuring good practices are applied and encouraged and enforcing the strategy in line with current local, national, or European directives related to green policy.

To facilitate practitioners to support, it is best practice to support them in keeping up to date with green skills policy, initiatives, and updates through professional development opportunities related to sustainability and by provide training and awareness raising activities to VET staff members and the local community on how to implement them.

These points fit into wider best practices relating to promotion and awareness raising which include VET trainers implementing sustainable day-to-day practices within the learning environment (recycling, energy saving, etc) and advising on green practices. Other means of activity include organising engaging promotional events for learners and specific environment focused events to increase motivation and acceptance among learners.

Lastly, encouraging VET practitioners to advocate for the green strategy by listening to learners' opinions and input, letting learners "own" the green strategy which serves a driver to increase learner interest. Lastly, by organising learner, trainer, and centre participation in actions of the European Union, municipality or local area concerning sustainability to support implementation of wider values for change.

The broad range of challenges VET practitioners and trainers face during the implementation of a green strategy are highlighted below.



The key challenges related to VET practitioner involvement in green strategy integration are those faced in any organisation which carries out activities beyond business as usual. The key education and training challenge is ensuring consistency across courses and programmes. Many employees in this sector do not have the time to individually adapt their training material and re-organise their courses since they are already severely overworked, and many organisations are understaffed. Therefore, from a governance perspective, ensuring necessary investment and allocating sufficient time and resources outside of teaching activities is important.

VET centres should also provide adequate training for practitioners around sustainability and environmental approach to programme delivery. This includes supporting teachers to integrate the concepts into course material beyond the mainstream information, not presenting the sustainable integration strategy as an obligation but framing it in such a way to generate individual motivation and personal action. Encouraging and supporting open-mindedness of their peers and their learners can be challenging for VET practitioners depending on the context. Other challenging aspects for VET practitioners are to understand that the green approach goes far beyond the moment of learning and dealing and managing the lack of existing knowledge of learners.

Challenges faced in stakeholder engagement and buy-in can be most challenging as these are often mindsets forged over several years. Initial reluctance or scepticism from learners is common can be overcome but factors such as lack of interest can be difficult as no extent of awareness raising can break the barrier. It was acknowledged by respondents that sometimes learners are simply not as willing or motivated to contribute to the green strategy, which makes the implementation even more difficult

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for the trainer.

Sustained interest over time is also a challenge. Stakeholders report that both trainers and learners are very motivated and committed at the beginning of the process, however, parties are more likely to lose their dedication over longer periods of time. This often leads to a half-hearted integration with virtually no sustainable or lasting impact and highlights the importance of ensuring a full change management strategy and process is in place to ensure the strategy becomes part of the business-as-usual suite, rather than a failed implementation.

Part 3. Pan-European Green VET Approaches mentoring and mutually collaborative professional development schemes

Respondents were asked to provide responses and insight on their:

- Involvement in collaborative professional development schemes
- Unofficial or informal mentoring schemes relating to green pedagogical approaches in the VET sector
- usefulness of pan-European collaborative professional development opportunities, mentoring and support schemes

It is worth noting that the responses for this section were brief and whilst they provided insight into the subject from the perspective of VET centres and staff, reflect a lack of this type of initiative within the VET centres the RetroVET consortium engaged with.

Regarding collaborative professional development schemes, in Spain, one respondent was aware of several EU funded programmes have dealt with this topic, another was aware of talks organised through EfVET for members. The Alliance for Vocational Training, recently presented by MEFP aims to collaborate with companies, entities, social agents, civil society organisations and the media to promote concrete initiatives that contribute to enhancing a high-quality and innovative Vocational Training system, which contributes to the double ecological and digital transition, supporting economic growth and social cohesion. One of the actions is to identify and disseminate good practices and innovative experiences.

Respondents from Italy referred to a European project they are aware of that aims to promote in high school students the ability to think critically about the issues of climate change, sustainability and acting justly and attentively. The Sustainability Education Plan was also mentioned and noted that in the respondent's experience very few schoolteachers know about it and adopt it. In Portugal there is the Eco-Schools international programme from the Foundation for Environmental Education, developed in Portugal since 1996, that intends to encourage actions and recognise the quality work developed by schools/VETs within the scope of Environmental Education for Sustainability. In Cyprus two out of five participants answered that are aware and

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actively involved in mentoring schemes relating to green approaches in the VET sector. The same number responded that are not aware of them, but they are willing and open to participate. In Germany one stakeholder had heard of some projects dealing with this topic but has not been involved in them.

Regarding involvement in, or awareness of any unofficial or informal mentoring schemes relating to green pedagogical approaches in the VET sector, one respondent in Italy was aware of some training organisations which offer contributions, but outside the fields directly involved (architecture, engineering, etc.).

Regarding the usefulness and potential uptake of collaborative pan-European professional development opportunities, mentoring and support schemes relating to green strategies most respondents felt this would be a useful development in the sense that they believe such a mechanism would help harmonise good green practices and directives. In Cyprus the idea was generally received positively albeit with some participants are divided on whether these opportunities can contribute to educational action. In Spain, all respondents felt the concept was useful and expressed an interest in being involved in future activities related to it. In Germany there were doubts whether they would be able to include further development opportunities in an already busy calendar.

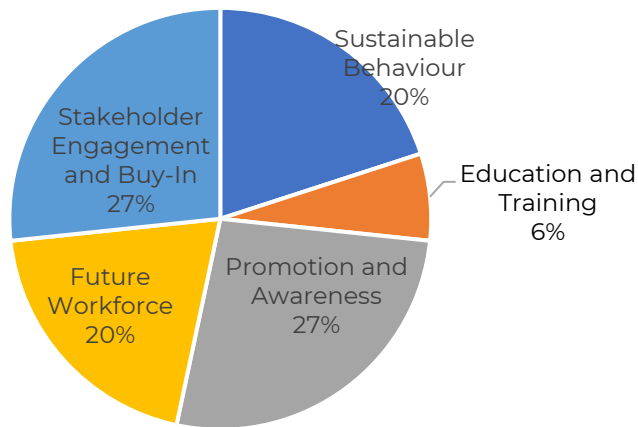
Part 4. Facilitating the uptake of Green Skills and Knowledge among learners

For this section, respondents were asked to provide:

- Impact on learner experience and achievement
- How learners benefit
- Challenges learners face

The impact of a green strategy on learner experience and achievement was gathered from stakeholder partners and summarised qualitatively below. Thematically, the core points fell within stakeholder engagement, sustainable behaviour, promotion and awareness and future workforce.

Thematic areas related to green strategy impact on learner experience and achievement

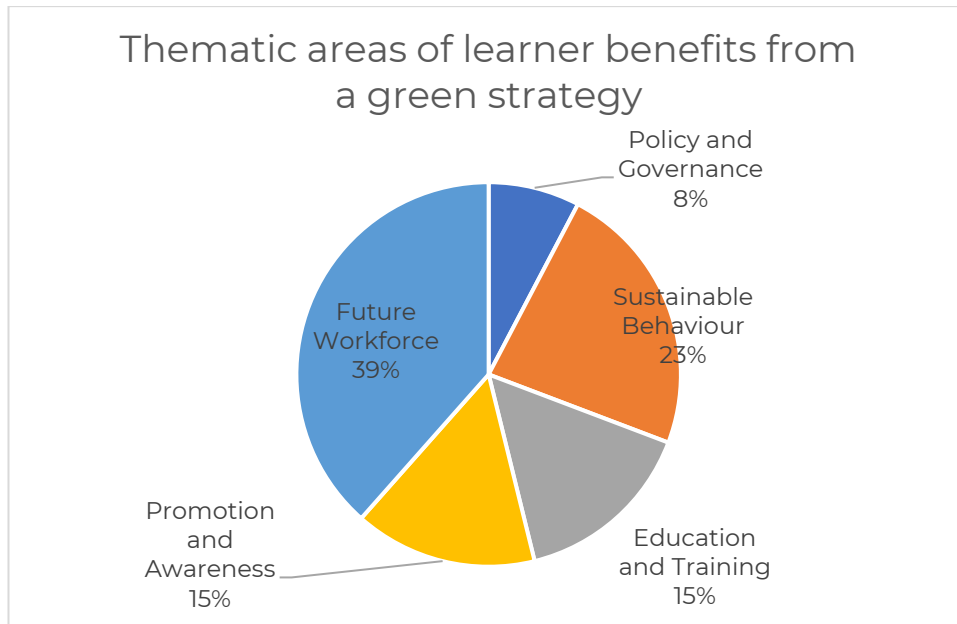


There is a consensus among respondents that having a green strategy provides learners with knowledge which better prepares them for future labour market evolution and the green skills requirements for the green jobs of the future, that will require a new set of knowledge and skills. Broadening their horizons by incorporating sustainability awareness is vocational training also gives them a greater understanding of future jobs and skills requirements in their own sector, and in those related or linked to them.

Such adaptations also provide learners with enhanced critical thinking skills related to their own industry and connected factors. This allows them to be able to confront the generally accepted points of view and perspectives of their industry and society overall – leading to more conscious choices and actions by shaping minds and habits.

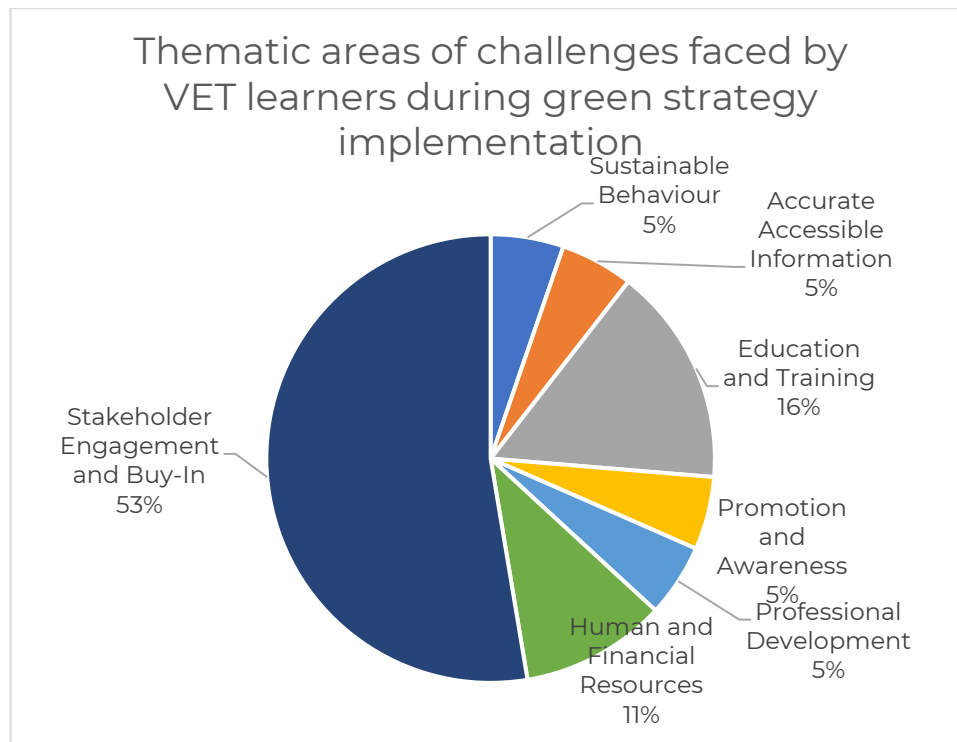
Where learners relate directly to environmental issues and wider sustainability initiatives, it can increase their engagement and provides a more interactive, learner-led learning environment and experience. Such a change in approach to teaching also enables a more rounded experience with increasingly innovative ways of experiencing educational settings.

The key benefits for learners at a vocational training centre with a green strategy are summarized thematically below.



Relating to future workforce learning within the framework of a green strategy provides learners with a professional competitive advantage in some sectors. As well as being better prepared for the jobs and skills of the future, learners benefit by learning to approach work in a more modern and forward-thinking way, linked to the circular economy model. Learners also tend to acquire a broader set of knowledge and skills, linked to high-level strategy initiatives such as the European Green Deal and the Sustainable Development Goals.

Learners also benefit purely from the exposure to a green strategy and principles. Even when not fully invested in the strategy learners know it exists and have an understanding of how it operates which can, even subconsciously, play a role in ensuring future green strategies for all VET graduates.



The largest challenges for learners during a green strategy integration process, and adapting to green strategy changes are linked to stakeholder engagement and buy-in.

As have been mentioned earlier in this handbook, a lack of interest or the motivation to adapt and incorporate green strategy elements as well as insufficient support and guidance from pedagogical support systems have a huge impact on whether learners can adapt. The next step up for learners is to actively be part of the action of change and not merely spectators and to be open and willing to embrace new approaches proposes, which supports a feeling of inclusion and self-importance.

A significant challenge for learners is the achievement of unity with and among their peers to ensure they are not only involved but working together, and in turn, overcome negative peer pressure related to existing bias and superficial knowledge about sustainability and the environment. It is important for learners to engage in participation voluntarily and understand that it is not an obligation for them. Key to overcoming the challenges, is that learners should embrace the topic of their own initiative or that they are involved in a project that is going to improve their environment and their future.

Part 5. Financing the integration of Green Elements for existing VET centres

Respondents were asked to provide answers relating to the financing of green strategy within the vocational education and training sector. Regarding the question of whether correct information is available for vocational training centres regarding

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financing of green elements, in Spain the respondents were not aware but mentioned that there may be some support at the national or regional level. In Italy the Climate Action Guide was mentioned and in Portugal replies referenced the Eco-Schools programme and National Strategy for Environmental Education. Cyprus and Germany replied that information is poor and insufficient, and that accurate information is difficult to find due to the bureaucracy surrounding it. In Estonia information is good, links back to wider government policy and is supportive of VET centres looking to embrace forward-thinking policies.

Regarding financial guidance and support available relating to implementing a green strategy, the Italian respondents mentioned EU initiatives that presuppose a certain structure and in Cyprus that financial support is provided by the state and through European projects.

Part 6. Green elements case studies

This section of the handbook provides comprehensive case studies from each of the partner countries, and to provide readers with a broader view, a short case study from every additional Erasmus+ programme country. Many of these case studies are adapted from case studies available from existing digital and online sources, and are brought together here to provide wider context on initiatives and strategies linked to the themes of the RetroVET project.

Country:	Estonia
Organisation:	Ministry of Environment, and the Ministry of Education of the Estonian Republic
Category:	Green VET Strategy
Overview/summary of the best Practice in Green Skills Integration/Application:	<p>Project Tuulik ("Windmill" in Estonian) was initiated by the Netherlands Ministry of Foreign Affairs (the Social Transition Program of Central and Eastern Europe MATRA), the Ministry of Environment, and the Ministry of Education of the Estonian Republic, with a follow-up project Aiatuulik ("Garden Mill" in Estonian) in collaboration with the Ministry of Environment and the Tallinn Department of Education. The projects assist Estonian schools and kindergartens in developing Education for Sustainable Development (ESD) curriculum and incorporating ESD issues into the schoolwork plan.</p> <ul style="list-style-type: none"> • Tuulik project goal: Improve environmental education and ESD with objectives concerning the development of awareness of the coexistence of nature, society, and culture, as well as the development of a sustainable attitude toward the surrounding environment. • Aiatuulik project goal: Estonian pre-schools have adopted cutting-edge technology on environmental and sustainable development education into their school development plan and curriculum and use well-compiled teaching materials in both languages.

<p>Green skills and competences applied/fostered:</p>	<p>Peace studies (e.g. international relations, security and conflict resolution, partnerships), Ethics and philosophy, Citizenship, democracy and governance Human rights (e.g. gender and racial and inter-generational equity), Poverty alleviation, Cultural diversity, Biological and landscape diversity, Environmental protection (waste management, etc.), Ecological principles/ecosystem approach, Natural resource management (e.g. water, soil, mineral, fossil fuels) Climate change, Personal and family health (e.g. HIV/AIDS, drug abuse), Environmental health (e.g. food and drinking; water quality; pollution), Corporate social responsibility, Production and/or consumption patterns, Economics, Rural/urban development</p>
<p>Impact on leadership / governance:</p>	<p>1) Examples of school curriculum development and implementation in EE/ESD pilot schools. 2) Creating and implementing a supporting structure for the creation and execution of the schoolwork plan; 3) Establishment of networks of follower schools around each of the pilot schools and enabling institutions with the goal of exchanging experiences and stimulating continuous EE/ESD strengthening; 4) Teacher and school administration training to improve skills and motivation; 5) Development and revision of the teacher training curriculum in the Pedagogical faculties of the Estonian universities involved in the project; 6) Establishing an infrastructure for collecting and disseminating teaching materials, information, and training programs (inventory of existing material, establishment of an information center)</p>
<p>Impact on pedagogical staff:</p>	<p>The cooperation of teachers within the school (kindergarten) improved. Good cooperation and exchange of experience and ideas between schools. New and diverse options for teacher education. Exchange of international experience. Participants believe that environmental work will continue after the project is completed.</p> <p>It is also critical that activities for schools (kindergartens) with Russian and Estonian language instruction are consistent, as this aids integration. Tuulik participants described the main impacts in the booklet "Tuulik. Grains of truth" (in Estonian and Russian http://www.hared.ee/files/kniga.pdf).</p>
<p>Impact on learners:</p>	<ul style="list-style-type: none"> • Learning to learn (critical thinking, understanding systemic thinking, problem-solving, managing change/problem-setting, creative thinking, understanding interrelationships across disciplines) • Learning to do (applying learning in a variety of life-wide contexts, decision-making, dealing with crises and risks, acting responsibly, acting with self-respect) • Learning to be (self-confidence , self-expression and communication , coping under stress , ability to identify and clarify values)

Challenges faced:	The main challenge in this type of practice is internal resistance and a lack of teamwork. It can be difficult to overcome the sense of "competition" between schools (kindergartens) at times because they tend to close their ideas and other information from others.
Potential for wider application:	Similar projects can be developed for a larger target audience. This type of practice is easily replicable. In fact, Aiatuulik became a mirror image of Tuulik. The main condition is the desire of national and local authorities to resolve school (kindergarten) education problems, as well as the freedom of schools (kindergartens) to develop their curricula.

Country:	Germany
Organisation:	IHK Deutschland (Chamber of Commerce and Industry) → Certificate programs: "Sustainable Leadership" & "Sustainable Mentor" Website: https://www.nachhaltig-erfolgreich-fuehren-ihk.de/
Category:	Green VET Skills and Knowledge
Overview/summary of the best Practice in Green Skills Integration/Application:	The BMBF-funded project and IHK management training "NACHHALTIG ERFOLGREICH FÜHREN" (<i>Sustainable Successful Leadership</i>) shows how sustainability can be successfully translated into a company's own reality. The holistic concept of the training offers three program areas with profound sustainability knowledge for different target groups within a company: The first area is aimed at company decision-makers with special formats. The second area with specialized modules for middle management forms the core and is offered as a certificate course "Sustainable Leadership (IHK)". The third area is aimed at multipliers such as CSR managers with a certificate course in "Sustainable Mentor (IHK)".
Green skills and competencies applied/fostered:	<ul style="list-style-type: none"> • Social dimension: inclusion, equality, wages, conflict management, human rights in supply chains, ... • Economic dimension: sustainable products and services, transport and logistics, anti-corruption, sourcing, ... • Ecological dimension: consumption and usage of resources, climate protection, environmental management, recycling, packaging, ... Modules: <ul style="list-style-type: none"> • Basics of Sustainability • Sustainability as strategic instrument • Values and Compliance • Sustainability in logistics and supply chains • Reporting on sustainability • Sustainable communication • Digitalisation and Sustainability • Sustainable investments and finance • Sustainability in HR • Sustainability in distribution and marketing

	<ul style="list-style-type: none"> • Sustainable production • Environmental management • Responsible leadership
Impact on leadership / governance:	<ul style="list-style-type: none"> • Project aimed at companies and (future) leadership positions / executives • Offered free of charge in pilot phase (until 2022) • Funded by the BMBF: Federal Ministry of Education and Research
Impact on pedagogical staff:	<ul style="list-style-type: none"> • Professional empowerment • Informative contents • Experienced and skilled staff
Impact on learners:	<p>(1) Mentoring-Programme: Implementation of a profound program for the qualification of mentors who can accompany the sustainable change personally and professionally. The program is aimed at professionals in companies with an affinity for sustainability. Mentors can accompany people in their own organization, but also leaders of other organizations. This helps to ensure that sustainability projects in companies receive optimal support. Mentors proactively promote the idea of sustainability and agile change.</p> <p>(2) Development of a sustainable business strategy</p> <p>(3) Strengthen mindset for sustainable leadership</p> <p>(4) Leverage strategic benefits of sustainable change</p> <p>(5) Supra-regional and national networking with other learners in the field of sustainability</p>
Challenges faced:	<ul style="list-style-type: none"> • Certificate course still in piloting phase, but for now, all courses and classes are fully booked • For now: only offered by a few institutions that belong to the IHK network (not yet nationally implemented, only regionally!)
Potential for wider application:	<ul style="list-style-type: none"> • National implementation • Expansion to other sectors and focus not only on leadership and middle management
Country:	Cyprus
Organisation:	AKTI
Category:	Green VET Skills and Knowledge Green Approach
Overview/summary of the best Practice in Green Skills Integration/Application:	<p>Project INTERACT: Training on entrepreneurship and green sector jobs</p> <p>A workshop in Cyprus on composting, organic cultivation, community gardens and material reuse as tools for improving integration and standard of living. Training material was developed and presented on self-employment and opportunities in green jobs.</p>
Green skills and competences applied/fostered:	The participants developed skills in composing, organic cultivation, creating community gardens and how to reuse material.
Impact on leadership / governance:	The organisation had the chance co-work with other organisations from Europe and to be exact with Italy and Bulgaria, Greece and United Kingdom. The

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	maintained relations with the organisations that were took part in the activities. Moreover, it gave the chance to AKTI to create much more projects that were founded by the Erasmus European Projects or the Ministry of Cyprus.
Impact on pedagogical staff:	Through this workshop the staff is able to implement the theory through activities.
Impact on learners:	Gain knowledge and skills that can be used in their daily life. The workshop raised their environmental awareness and promoted sustainability.
Challenges faced:	The challenge that they had to deal with was the location of the activities because they wanted to find a field for the workshops that the participants would be able to connect with their native language, culture and nature.
Potential for wider application:	The project could be developed for a different target group. For example, it could be for educators in schools through vocational training centres in order to implement the activities into their future educational plan.

Country:	Poland
Organisation:	Association of Agricultural and Forestry Education EUROPEA Poland
Category:	Green VET Skills and Knowledge
Overview/summary of the best Practice in Green Skills Integration/Application:	<p>In 2019 the Association for Agricultural and Forestry Education EUROPEA Poland, carried out a training project entitled "Renewable energy sources RES an opportunity to improve air quality." The training/study tour was attended by 20 people representing partner institutions, as well as local governments, local action groups (LAGs) and rural residents.</p> <p>The project consisted of 3 modules: Module 1 - stationary training conducted at Agricultural Advisory Center (day I), study tour (4 days), Module 2 - scientific competition of knowledge about renewable energy sources for students of agricultural and forestry schools from the Wielkopolska voivodeship, and Module 3 - preparation and publication of a publication - renewable energy sources Guidebook for advisors.</p>
Green skills and competences applied/fostered:	<p>Participants from the target groups were prepared to disseminate content related to the training topic to their potential partners: villagers, farmers, entrepreneurs operating in their area. In addition, the operation gave rise to long-term effects for rural development:</p> <ul style="list-style-type: none"> - increased awareness of rural residents of the possibilities of financing renewable energy sources in Wielkopolska/Poland, the harmfulness of burning garbage to human health, the relationship of waste management to air pollution; - increasing the availability of information on implemented projects in the area of energy

	<p>innovation, supporting the improvement of air quality, reducing conventional energy sources;</p> <ul style="list-style-type: none"> - dissemination of examples of cooperation to improve air quality; - higher awareness of environmental quality, elimination of sources of pollution in rural areas.
Impact on leadership / governance:	<p>The project aims to influence decision-makers on issues of electricity cost optimization and the use of the pyrometer in consulting work. To this end, a meeting was held at the</p> <ul style="list-style-type: none"> - University of Life Sciences in Lublin on the concept of a Polesie biogas network based on a model of citizen participation; - National Academy of Sciences on the biomass of microalgae, their use in the direction of biofuel production; - Lubuskie Agricultural Advisory Center in Końskowola on the status and prospects for the development of RES in the Lublin province; - Institute of Fertilization and Soil Science in Puławy on the Biostrateg program - innovations for agriculture, forestry and the environment.
Impact on pedagogical staff:	<p>As part of the operation, a "RES Guidebook for Advisors" was published in a circulation of 1000 copies. The publication is intended to serve agricultural advisors, entrepreneurs, representatives of local government units and non-governmental organizations in order to transfer knowledge about renewable energy sources and facilitate decision-making related to the implementation of investment activities to improve air quality with the use of renewable energy sources.</p>
Impact on learners:	<p>The operation created an opportunity for participants to get acquainted with concrete, implemented solutions that have a direct impact on improving air quality, which to a much greater extent allows participants to believe in the possibility and sense of implementing analogous actions. The implementation of the project also created a platform for participants to exchange views on the changes taking place in the aspect of low emission reduction measures, to reach views, as well as for discussion, which can lead to innovative ideas, using the experience of the training. During the training, both in the lecture part carried out at the Agricultural Advisory Center and during the study tour, a number of discussions were held on the topics of the training. Participants exchanged views, established new contacts that may result in further cooperation in the future.</p>
Challenges faced:	<p>The operation was aimed at increasing the knowledge of the trainees, students of agricultural/forestry schools and residents of rural areas on the possibilities of improving air quality, the use of renewable energy sources technologies and their application in entrepreneurship and municipal ventures. During the training, the participants were introduced to the issues of activities and programs supporting air protection in Wielkopolska, the possibilities for the development of renewable energy sources in Wielkopolska and the current legal status regarding</p>

	renewable energy sources in Poland. Information on the use of renewable energy sources in optimizing energy costs as part of passive construction was presented. The goals and scope of the C-Track 50 project implemented by the Marshal's Office of the Wielkopolska Region in Poznan were discussed. Participants also had the opportunity to learn about investment aspects for prosumers and small energy producers.
Potential for wider application:	It is possible to either adapt or transfer the results of this project to other regions in both Poland and other countries, as they are based on universal principles of a sustainable economy. Knowledge can be shared through educational provider groups, or through direct application of this initiative and its methods in other vocational training centers. The operation made it possible for a broad range of institutions interested in the topic of renewable energy sources to participate in the training, in order to improve air quality.

Country:	Portugal
Organisation:	VET School of Hospitality and Tourism of Portugal
Category:	Green VET Strategy
Overview/summary of the best Practice in Green Skills Integration/Application:	The Eco-Schools programme is an international initiative of the Foundation for Environmental Education, that runs in Portugal since 1996 by the Association Blue Flag of Europe. It intends to encourage and recognise quality work developed by schools, but also VET providers/schools, on environmental education, by providing a methodology, training, educational materials, and support to schools. The VET School of Hospitality and Tourism of Portugal (VET providers in the tourism sector and with an increasing concern for the topics of sustainable practices in this sector), participate in Eco-Schools since its beginning and include in their annual agenda sustainable practices and initiatives. In the year 2019-2020, all the 12 VET centres were awarded the Eco-Schools seal of excellence, as they have successfully adopted the Eco-Schools methodology by drafting and implementing an effective Action Plan focused on the greening of its services and operations.
Green skills and competences applied/fostered:	To apply to the Eco-Schools seal of excellence, all the 12 VET centres developed an Action Plan based on the common seven steps methodology of the programme, fostering the creation and development of an Eco-Schools Board, environmental audits, an Action Plan (with the main measures to implement), a monitoring and evaluation process (to revise and adapt the Action Plan) and curricular work (to change the pedagogical approach) and promoting the involvement with the local community (through contests, events, articles) and the drafting of an Eco-code (a code of conduct for the VET community). This, of course, translated into the development of a series of green skills and competences acquired by the VET managers, trainers, learners, and other educational staff to comply with the new structure and activities.

Impact on leadership / governance:	With the implementation of Eco-Schools, all the 12 VET centres now have a general policy (Action Plan, eco-code) and infrastructures and facilities that intend to comply with their willingness to be more environmental-friendly. The Eco-School's Board is seen as a participatory decision-making body with effective power to draft, monitor and change the Action Plan and includes all VET stakeholders (managers, trainers, learners, other educational staff, parents, local community). The adoption of Eco-Schools gave these 12 VET centres greater relevance as spaces of dynamisation and preservation of the environment. Their governance changed with the Eco-Schools
Impact on pedagogical staff:	Curricular work is one of the seven steps of the Eco-Schools methodology, meaning that at some level all these 12 VET centres made changes in their pedagogical approach to include environmental topics. In fact, the Eco-Schools programme provides educational material to support VET professionals to adapt their classes to environmental education and practices. VET Trainers are also very much involved in the application process for the Eco-Schools seal of excellence and most activities related with the programme are prepared as educational projects.
Impact on learners:	The learners of these 12 VET centres, not only did they got in touch with environmental and sustainability education topics, particularly adapted to the sector they would prefer to work at in the future – the tourism sector, but they are also given the challenge to actively participate in the decision-making process of Eco-Schools through the Eco-Schools Board. This helps them raise awareness towards the importance of the environment in their daily lives at a personal, familiar and communitarian level. It also gives them new skills than can be transferred to their workplace in the tourism sector that want to become more sustainable.
Challenges faced:	What is attractive in the Eco-Schools methodology as applied by these 12 VET centres is that the seven steps methodology tries to involve all members of the VET community in the decision-making process. This, of course, can create several challenges for an effective decision-making process, particularly if learners still lack in depth understanding of environmental issues or other parties create significant barriers to implementation. Other challenge is to effectively plan, coordinate and successfully implement all activities foreseen in the Action Plan, since setbacks do occur.
Potential for wider application:	It is possible to adapt or transfer this practice to other countries, as it is based on a common and available international methodology (www.ecoschools.global). The knowledge can be shared either through networks of educational providers (e.g., seminars, meetings, interchange) in the scope of initiatives of the Eco-Schools programme or by directly applying this initiative and its methodology in a VET provider that wants to become more environmentally conscious. In fact, the programme in Portugal between 2020-2021 had the participation of more than 50 VET providers, and all of them received the seal of excellence, which means that any other VET provider can engage with this international

	programme.
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Country:	Spain
Organisation:	Sección del IES Joan Fuster (Sollana) - Programa FPB
Category:	Green VET Strategy Green VET Approach
Overview/summary of the best Practice in Green Skills Integration/Application:	Every week, the VET students are responsible for collecting all the material from the recycling bins in each classroom, weighing it on a scale and calculating all the material collected, both plastic and cardboard. On the other hand, and for a longer period (quarterly), the recycled material deposited in the appropriate containers for batteries is also recorded.
Green skills and competences applied/fostered:	<ul style="list-style-type: none"> - Skills to interact in the physical world both in natural aspects and with those generated by human action. - Activity directed towards action aimed at the improvement of all living beings. - Development of the ability to analyse, plan, organise and manage waste.
Impact on leadership / governance:	A greater commitment to the environment with the implementation of this sustainability project.
Impact on pedagogical staff:	There has been a very positive impact as well as oversight in the implementation of this project.
Impact on learners:	Very positive, as more awareness has been created with this sustainable project as it has been done by themselves and not imposed.
Challenges faced:	It was a challenge for the students to calculate the amount of waste collected, as well as to find the specific containers to carry out the activity, as they were not provided for by any public institution to which the school is attached. (There was no budget for this project).
Potential for wider application:	This project can be used as a model for all, VET centres and also schools regardless of the specific professional field to which they belong. It could be a good example of good practice as it is not necessary to be under any official programme (municipal, national or European) to carry out this type of project, nor to have the funding to do so.

Country:	Italy
Organisation:	ITS Agroalimentare per il Piemonte
Category:	1) Green VET Strategy 2) Green VET Approach 3) Green VET Skills and Knowledge
Overview/summary of the best Practice in Green Skills Integration/Application:	<p>The course of EXPERT TECHNICIAN OF SUSTAINABILITY IN THE FOOD PROCESSING SECTOR is a professional training course to acquire all the knowledge and technical skills necessary for small and medium-sized agro-food production and processing enterprises to evolve processing techniques according to principles of sustainability and circular economy.</p> <p>The aim is to train experts capable of analysing all production processes, being able to identify any criticalities and arranging corrective activities at the agencies.</p>

	<p>The training partly concerns the agrifood chain (the production, storage and processing phases of primary products) and partly the processes of innovation and sustainable transition.</p> <p>The creation of a new professional figure is the answer to the ever-increasing market demand for food certification, in a local context that enhances the excellence of the territory and also in an international context.</p> <p>The Technician expert in Sustainability in the Food chain can find a position, with technical-operational functions, in small and medium-sized agro-food production and processing companies. In power, the professional trained in this ITS can be a freelancer for technical-specialist consultancy to SMEs or set up new businesses or associations.</p>
<p>Green skills and competences applied/fostered:</p>	<p>Applied/favoured green skills and competences: From a green skills perspective, the course covers lessons such as:</p> <ul style="list-style-type: none"> Designing for sustainable development Packaging and raw materials Economics for sustainable development Food technology Innovation and entrepreneurship Elements of Sustainability
<p>Impact on leadership / governance:</p>	<p>ITS Agroalimentare per il Piemonte has the objective of 'LEARNING TO INNOVATE' and bases its training courses on technological specialisation and close links with local companies.</p> <p>The training, defined on the 'learning by doing' model, envisages that 30% of the hours are devoted to in-company training.</p> <p>ITS training is completely free of charge for students. The teaching staff is university-educated and includes experienced professionals in the relevant sector.</p> <p>The courses are subject to the approval and funding of the Piedmont Region and the Ministry of Education.</p>
<p>Impact on pedagogical staff:</p>	<p>This course is so innovative that it is difficult at present to identify a professional profile that matches it, which means that each teacher has to find the correct approach to his or her discipline in order to provide the student with useful skills in an as yet undefined scenario. Teachers must first ask themselves what sustainability means within the training material they use.</p>
<p>Impact on learners:</p>	<p>Admission to the course is subject to selection for candidates with a secondary school diploma or higher qualification. Priority access is given to unemployed or unemployable persons under 35 years of age.</p> <p>The entry selection is based on general culture and motivational tests with reference to the course topic.</p> <p>The training course lasts two years and includes 1,800 hours, 680 of which in a production environment, and offers the possibility of access to the State examination for the award of the Diploma of Superior Technician, level V EQF.</p> <p>ITS Agrifood relies on a wide network of small, medium and</p>

	large enterprises in the area that are the reference labour market for the young professionals trained by the school.
Challenges faced:	Challenges faced: The challenges faced derive from the inherent characteristics of the training proposal: the creation of a professional figure not yet present in the company workforce is an ambitious but also risky challenge. For this reason, it is necessary to search carefully and in close dialogue with corporate partners for suitable solutions for the part of the training in the field (the apprenticeship), which can become a great opportunity for evolution both for the students and for the companies that welcome them.
Potential for wider application:	Building generalised awareness that it is necessary to certify and measure green skills. It is crucial to ensure that this is not just one of the training proposals in the agri-food sector but that it can be linked to a network of courses that prepare green deal practitioners so that a common, curricular background can be defined and established.

Country:	Austria
Context:	ECOLOG, a key action program and network for the greening of schools and education for sustainability, was developed in 1996 by an Austrian team of teachers working on the international Environment and School Initiatives (ENSI) project.
Action:	The ECOLOG school network is based on a participatory approach in which schools have analyse the ecological, technical, and social conditions of their environment. The 'ECOLOG' program promotes and integrates an ecological approach in the development of individual schools. An increasing number of schools have started to participate in the ECOLOG program.
Outcome:	The success of the program has led to: 1) improved teaching methods, 2) the increased of health education and ecological and social issues in different subjects, 3) the network supporting further development, 4) improved design and organisation of school buildings, 5) measures of energy optimization, 6) changes in school life including healthy food for pupils and teachers, and 7) improved image of the school.
Source:	Hungarian Education Research Journal Volume 9 Issue 4: 'The Austrian ECOLOG-schools programme: History, structure, lessons learned, and impact of a network'
Link:	https://akjournals.com/view/journals/063/9/4/article-p589.xml

*This case study has been rewritten and adapted from a case study published by **Hungarian Educational Research Journal**.*

Country:	Belgium
Context:	Ecover is one of the 336 companies in Belgium in the 'Production and trade of cleaning products' sector', which is part of the chemical industry. Since its founding in 1980, the company has aimed to organise its activities with the lowest possible environmental impact from a perspective of sustainable development.
Action:	The company has implemented a set of green practices intended to mitigate climate change, including products which are made of vegetable and mineral raw materials, controlling suppliers to promote environmental practices on their production sites, taking a collaborative approach with its stakeholders and even providing training sessions for staff to increase awareness of the environment.

Outcome:	The steps taken by Ecover have resulted in considerable attention to training, an attention to working conditions and a compensation and benefit policy meant to encourage workers to use more environmentally friendly modes of transportation. This has supported Ecover adopt an overall strategy which favours not only the promotion of green products, but long-term growth.
Source:	Eurofound; Belgium: Ecover; 'The greening of industries in the EU'
Link:	https://www.eurofound.europa.eu/observatories/emcc/case-studies/the-greening-of-industries

*This case study has been rewritten and adapted from a case study published by **Eurofound**.*

Country:	Bulgaria
Context:	An important priority of the Government of the Republic of Bulgaria is the development of a truly responsible and positive attitude towards the environment. SD issues are part and parcel of Bulgarian textbook contents and school syllabus State Educational Requirements (SER), since 2004.
Action:	Several projects have been implemented jointly aimed at raising public awareness as to the importance of environment protection and the formation of environment protection-oriented mentality since early childhood to be developed and enriched all through the educational process. These include: 'To a Better Environment with Floopy Campaign', 'Green Packs', 'Environmental Portable Classroom', 'Environmental education and Education for sustainable development in primary schools in Bulgaria' project.
Outcome:	Although the results of the different projects vary and complement each other, extracurricular and out-of-school activities has been ensured to involve individual classes in more practical environmental field projects. A special course called "Ecology and Environment Protection" provides students with the professional and personal competencies to ensure a professional success in different professional environmental fields. You can read further details about the specifics of each project in the link below.
Source:	United Nations Economic Commission for Europe; 'POLICY, REGULATORY AND OPERATIONAL MEASURES AT SUPPORT ESD IN REPUBLIC OF BULGARIA'
Link:	https://unece.org/fileadmin/DAM/env/esd/Implementation/

*This case study has been rewritten and adapted from a case study published by **United Nations Economic Commission for Europe**.*

Country:	Croatia
Context:	Due to extreme environmental events caused by climate change, Croatian health systems found a need to adapt gradual changes in health outcomes. There was also a need to provide an efficient plan at national and local level during heatwaves and specific recommendations for health professionals which required the health community to play an active role in awareness-raising and advocacy, strengthening the evidence base and climate and health programming while working in a coordinated manner with other actors.
Action:	SDGs 13 and 3 formed the basis heat-health action plan across all sectors through engagement with a wide range of stakeholders. The core elements and structure were designed in line with WHO guidance including advice on the plan's scope and core elements, responsibilities, advice on what to do during a heatwave and recommendations for health professionals.
Outcome:	Health and social care sector workforce were more prepared to respond to health-related climate change emergencies. Information on the impacts of climate change were translated from the scientific research domain into language and timescales relevant for policymakers.
Source:	United Nations Economic Commission for Europe; 'Regional Forum for Sustainable Development for the UNECE region: Case Studies Compilation'

Link:	https://unece.org/fileadmin/DAM/RCM_Website
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*This case study has been rewritten and adapted from a case study published by **United Nations Economic Commission for Europe**.*

Country:	Czech Republic
Context:	The Mazarykova Univerzita in Brno and the Deblín Primary school and Kindergarten created activities in the field of project teaching with focus on the sustainability discourse in the primary, secondary and tertiary education practice.
Action:	The tool to achieve the objective is the "Deblín landscape project" that focused on solving issues of sustainability, involving owners, users, decision-makers, shareholders, and stakeholders.
Outcome:	Creation of a new concept of the Deblín school. New activities towards an open school becoming a more social and cultural centre and even a part of functioning networks.
Source:	EDULEARN10 Conference, Barcelona; 'Sustainability Educational Project: Case Study Deblín Rural Town, South Moravia, Czech Republic'
Link:	https://www.researchgate.net/255885926

*This case study has been rewritten and adapted from a case study published by **EDULEARN10 Conference, Barcelona**.*

Country:	Denmark
Context:	Odder is a municipality just south of the city of Aarhus in Denmark. The Odder municipality wanted to introduce the digital world into the classroom seeking to follow the developments of society.
Action:	The Odder municipality devised a new strategy for public schooling called "Strategy for Future Public School 2012-2016". The aim of the strategy was to create varying and challenging learning environments through digital tools in teaching.
Outcome:	Tablets are used by teachers, students, and school principals within the municipality of Odder in Denmark, as all schools in the region believe an open, tolerant, and creative environment is necessary for learning. Infrastructure includes broadband and wireless networks in almost every classroom, in addition to interactive whiteboards and an iPad for every student aged six to 16, teacher and recreational instructor.
Source:	computerweekly.com; 'Case study: How technology has transformed education in Denmark'
Link:	https://www.computerweekly.com/news/2240177633/Case-study-How-technology-has-transformed

*This case study has been rewritten and adapted from a case study published by **computerweekly.com**.*

Country:	Finland
Context:	About 42% of all enterprises in Finland are in rural areas. For that reason, it is expected that innovations in bio economy will boost sustainable development along with employment in rural areas.
Action:	Creation of the strategic framework "The Finland We Want By 2050", identifying eight objectives for sustainable development from an equal perspective of well-being and respect towards nature.
Outcome:	The structured development of the green economy through the framework offers opportunities for farms to create new kinds of jobs and businesses in the rural areas. For example, supplying local customers with energy produced from wood-fuel, and providing tourism services in rural areas close to cities or ski resorts. Cooperation is traditionally strong in the rural areas of Finland and networks among local entrepreneurs can be of mutual benefit to different businesses, for example between a food producer and a tourism provider.

Source:	European Network for Rural Development: Case Study – Finland, Programming for the Green Economy
Link:	https://enrd.ec.europa.eu/sites/default/files/

*This case study has been rewritten and adapted from a case study published by **European Network for Rural Development**.*

Country:	France
Context:	In recent years, France has been fostering the rise of green finance among financial and non-financial market participants. This political will has enabled a substantial increase in green projects funding, which therefore impacted directly sustainable production among private and public actors.
Action:	In 2015, France implemented a pioneering regulation for financial actors – institutional investors and financial intermediaries– “the article 173-VI of the law on Energy Transition for Green Growth” to take into account Environmental, Social and Governance factors and fight against climate change in investment decisions.
Outcome:	Through obligations linked to the measures above, investors must now show their stakeholders that investing in companies implementing sustainable patterns and processes are at the heart of their strategy and decision-making process. The increased regulations and awareness among investors means they contribute to the ecological and energy transition, by investing directly in tangible and sustainable projects.
Source:	United Nations Economic Commission for Europe; ‘Regional Forum for Sustainable Development for the UNECE region: Case Studies Compilation’
Link:	https://unece.org/fileadmin/DAM/RCM_Website

*This case study has been rewritten and adapted from a case study published by **United Nations Economic Commission for Europe**.*

Country:	Greece
Context:	NILO is a company that has produced and disposes of detergents since 1974. The company’s goals are closely aligned to the UN’s sustainable development goals. NILO’s green practices target the replacement of 100% virgin plastic material of their filled bottles into a percentage % of recycled material and aim to reduce their environmental impact and positively affect their ecological footprint on the planet.
Action:	In collaboration with the Danish company PLASTIX which supplies plastic fishing nets, fibbers and other waste to the shipping industry and converts them into high quality plastic raw materials. New cleaning products soap launched in Greek market with vegan formulation, packed in bottles made of the recycled plastic material sourced from the recycled fishing nets, trawls and ropes that was supplied from PLASTIX.
Outcome:	Nilo was the first company in Greece to supply green household and personal care products with vegan formulas packed in green recycled plastic packaging sourced from maritime industry. This resulted in a carbon footprint reduction, a green approach to manufacturing and a reduction of negative impact packaging had on the environment.
Source:	IDEC, EuroGEO; Greece: Survey of case studies of environmental practices in SMEs
Link:	https://www.researchgate.net/publication/350344708

*This case study has been rewritten and adapted from a case study published by **IDEC & EuroGEO**.*

Country:	Hungary
Context:	Ecoschool Network, which has more than 1,200 members, is maintained by the Ministry of Human Resources. It brings together schools that give priority to sustainability education and for at least 3 more years shape the

	environmentally conscious attitude of young people by implementing specific activities.
Action:	The institution develops its pedagogical program/professional program and the local curriculum according to the values of sustainability and global responsibility, so that they reflect the principles of environmental awareness and health awareness and the pedagogical activities aimed at them; in the institution's work plan, it defines the eco-school tasks of the academic year, appoints the responsible persons, establishes the deadlines, and implements the undertaken tasks; maintains its eco-school commitments and annually sets additional goals for the development of its activities in its annual work plan.
Outcome:	Creating a more environmentally conscious way of life is one of the main tools for dealing with the crisis. An eco-school differs from an average school in that the principles of environmental education and sustainability pedagogy are applied not only in teaching, but in all areas of school life; in terms of running the school as well as feeding the children or organizing the camps. The local community is connected to schoolwork in several ways. Local environmental values and concerns are part of the school's pedagogical work, embedded in the local pedagogical program.
Source:	HEVES COUNTY SZC SÁRVÁRI KÁLMÁN TECHNICAL SCHOOL, VOCATIONAL TRAINING SCHOOL AND COLLEGE
Link:	https://sarvarieger.hu/?s=öko

*This case study has been rewritten and adapted from a case study published by **HEVES COUNTY SZC SÁRVÁRI KÁLMÁN TECHNICAL SCHOOL**.*

Country:	Iceland
Context:	In the 1960s, after drawing for so many years on fossil fuels, Iceland could not sustain oil price fluctuations anymore. A new approach was required and due to the characteristics of the geographical and geological make up of Iceland mean the country has access to many renewable energy sources.
Action:	The step towards renewable were taken by local entrepreneurs. Geothermal resources had become of extreme importance that the Government of Iceland established a geothermal drilling mitigation fund in the late 1960s. The fund loaned money for geothermal research and provided cost recovery for failed projects. The framework also made it attractive for households to connect to the new geothermal district-heating network rather than to continue using fossil fuels.
Outcome:	Today, Iceland's economy, ranging from the provision of heat and electricity for single-family homes to meeting the needs of energy intensive industries, is largely powered by green energy from hydro and geothermal sources. The only exception is a reliance on fossil fuels for transport. The country's geothermal energy provides society with numerous benefits other than electricity and district heating. It is widely used to melt snow off sidewalks, heat swimming pools, power fish farming, greenhouse cultivation and food processing, as well as to produce cosmetics, such as merchandise from Iceland's famous geothermal spa, the Blue Lagoon.
Source:	United Nations UN Chronicle: Iceland's Sustainable Energy Story: A Model for the World?
Link:	https://www.un.org/en/chronicle/article/icelands-sustainable-energy-story-model-world

*This case study has been rewritten and adapted from a case study published by **United Nations UN Chronicle**.*

Country:	Ireland
Context:	In Ireland all domestic and non-domestic buildings are required to respect the Nearly Zero Energy Building standards (NZEB).

Action:	Waterford and Wexford Education & Training board outlined and set 10 NZEB short courses covering all the main building trades (carpentry, plumbing etc...). To do so they gathered inputs from industry partners, local governments, authorities, and institution.
Outcome:	The programmes are approved by The Construction Industry Federation and assured by the City & Guilds international award organization under its programme. People who successfully completed the programme received a digital badge which “allows learners to recognize and communicate learning achievements and certifications online in a secure way”.
Source:	International Labour Organisation: Greening TVET and skills development
Link:	https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_847095.pdf

*This case study has been rewritten and adapted from a case study published by **International Labour Organisation**.*

Country:	Latvia
Context:	Green developments in VET curricula started in 2012 with a first "Green skill" module. Green skill until that had only occasionally taken into consideration by Vet curricula.
Action:	The "Green skill" module was updated in 2020. Green thinking has become a transversal skill required for every young specialist. The 2012 module it has now shifted to sustainable development and sustainable future.
Outcome:	The content of the new module is now leading to renewable natural resources, renewable energy sources and circular economy. The Green component is now ensured even at the institutional level with strategies that help schools carry out their self-assessment, monitoring process and ensure the quality of their work.
Source:	CEDEFOP: Latvia: new momentum for green approaches in VET
Link:	https://www.cedefop.europa.eu/en/news/latvia-new-momentum-green-approaches-vet

*This case study has been rewritten and adapted from a case study published by **CEDEFOP**.*

Country:	Lithuania
Context:	The Vocational Training Center of Zirmunai (Profesinio mokymo centras „Žirmūnai“) highlighted inefficiencies in existing energy infrastructure and decided to address it.
Action:	The installation of a solar power plant on the facade of the building as well as the following building renovations: replacement of windows; exterior door replacement; insulation of external walls and plinth; roof insulation; warming of external surfaces; modernization of the heat point; modernization of the heating system; installation of external shutters for windows on the south facade; modernization of the lighting system; partial modernization of the ventilation system.
Outcome:	Stakeholders (leadership, teachers, learners) are proud working in such a sustainable institution. It is expected that the saved funds will be used to increase the quality of working and learning conditions. It also clearly sends the message to society that sustainability is a priority in the institution and may attract more learners and specialist in the future.
Source:	Vocational Training Center Zirmunai (Profesinio mokymo centras „Žirmūnai“)
Link:	https://www.mczirmunai.lt/is-europos-sajungos-strukturiniu-fondu-lesu-bendrai-finansuojamas-projektas-nr-04-3-1-vipa-t-113-02-0097-valstybei-nuosavybes-teise-priklausancio-pastato-zirmunu-g-143-vilniuje-atnaujini/

*This case study has been rewritten and adapted from a case study published by **Vocational Training Center Zirmunai**.*

Country:	Malta
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Context:	The GreenVET4SDG project addresses Greening TVET, which describes the development of knowledge, skills and attitudes that foster a culture of sustainable practices in the community, the workplace, and the institutional setting.
Action:	Aligning VET Curricula to Greening and the Sustainable Development Goals aims to raise awareness in students and teachers from vocational or academic backgrounds concerning the concept and economics of Greening TVET and societies.
Outcome:	This project has several impacts, including producing locally contextualized outputs at an institutional level, and supporting employees to act as drivers for increased efficiency and productivity at industrial level.
Source:	GreenVET4SDG Project
Link:	https://greenvet4sdg.eu

*This case study has been rewritten and adapted from a case study published by **GreenVET4SDG Project**.*

Country:	Netherlands
Context:	The BEGIN (Blue Green Infrastructure through Social Innovation) project was developed to make cities aware about ways they can improve climate resilience involving stakeholders.
Action:	Since its inception in 2016 the project has been implemented in 10 cities across Europe. The project applies a social innovation approach involving hundreds of citizens raising awareness on social-benefit of blue-green climate adaptation measures, including urban regeneration through nature-based solutions and nature-based solutions for improving well-being in urban areas.
Outcome:	The project helps to reduce flood risk, developing climate change mitigation, increase biodiversity, improve air quality, social inclusion and many more benefits.
Source:	Oppla: Case Study - BEGIN (Blue Green Infrastructure through Social Innovation)
Link:	https://oppla.eu/casestudy/20402

*This case study has been rewritten and adapted from a case study published by **Oppla**.*

Country:	North Macedonia
Context:	In Macedonia education in terms of environmental protection and water was at a very low level. In schools, even though they have a problem with access to water and sanitation, they have no knowledge of how to deal with this situation.
Action:	Through the initiatives of the Water and Sanitation Safety Planning (WSSP) project a WSSP Compendium Toolkit was introduced into schools to increase access to information and awareness of the issues related to safe water and sanitation. Students are offered practical activities within the framework of the WSSP program, for example water analyzes, excursions to the water catchment area, inspection of the toilets and an exchange of experiences with other schools.
Outcome:	Through the implementation of the project, over 50,000 citizens from 10 municipalities in Macedonia, from the eight planning regions, were covered. Direct beneficiaries were 20 primary schools with about 6000 children and 120 teachers who were trained in the subject of protection of the environment and access to water and sanitation. This included 7 private kindergartens with 280 pre-school children and 21 pedagogues which works with children in kindergartens. In 2018 during the Water Day, 480 drawings and over 500 essays on the topic of Water have been received, which is 200% more than the previous year, which says that education has an impact and makes children aware of the topic of water and sanitation.

Source:	United Nations Economic Commission for Europe; 'Water and Sanitation Planning in North Macedonia'
Link:	https://unece.org/fileadmin/DAM/RCM_Website

*This case study has been rewritten and adapted from a case study published by **United Nations Economic Commission for Europe**.*

Country:	Norway
Context:	During the UNFCCC COP21 in Paris, representative of the Human Rights Council of Norway tabled a resolution on the recognising the contribution of environmental human rights defenders to the enjoyment of human rights, environmental protection, and sustainable development.
Action:	Norway has kept a constant open dialogue with civil society organizations and defenders under threat on trends affecting environmental defenders. Norway went even further by including in a bilateral agreement a stop on harassment of organizations involved in environmental protection when aiding another European country.
Outcome:	The Norwegian engagement at the international and national levels produces effective outcomes that have positive impacts enabling people to act for the Planet.
Source:	United Nations Economic Commission for Europe; 'Safe and enabling space for public participation'
Link:	https://unece.org/fileadmin/DAM/RCM_Website

*This case study has been rewritten and adapted from a case study published by **United Nations Economic Commission for Europe**.*

Country:	Romania
Context:	In Romanian schools, environmental education is an optional discipline. This type of education aims to cover the educational needs and awareness regarding the risk of environmental degradation; benefits for society by developing an appropriate behaviour of youngsters towards protecting and conserving nature.
Action:	The experimental approach to engaging and teaching students about the environment explored how cartographic material, mostly tourist maps, could be efficiently integrated into ecological education classes, camps, extracurricular activities, etc. Two directions for use were adopted: in schools' classrooms and in extra-curricular activities.
Outcome:	Schools which undertook environmental education classes integrated and efficiently use cartographic materials (mostly geographic maps) in their teaching-learning process and the children displayed positive attitudes towards environmental education, and their curiosity is enhanced by specific practical activities in the field. Even if we take into consideration this feedback, it is a complicated procedure for teachers to conduct environmental education classes outside classrooms.
Source:	Geojournal of Tourism and Geosites: Environmental education in protected areas. case study from Bihor County, Romania
Link:	https://www.researchgate.net/publication/317770183

*This case study has been rewritten and adapted from a case study published by **Geojournal of Tourism and Geosites**.*

Country:	Serbia
Context:	Serbian country's food service sector generates about 40,000 tons of food waste annually. The estimated value of the amount of food from retail sales was about \$57.5 million in 2019.

Action:	A new web-based platform FoodShare was launched in May 2021 and aims to connect food donors, recipients, and volunteers to reduce waste. Combined technologies and data sources are useful to monitor the food waste.
Outcome:	National legislation and regulation could provide an enabling environment for consumer food waste and prevention. More support is needed for research and development of new products, services and tools based on green technologies.
Source:	UN Environment Programme: USING GREEN AND DIGITAL TECHNOLOGIES TO REDUCE FOOD WASTE AT THE CONSUMER LEVEL CASE STUDY: BELGRADE, SERBIA
Link:	https://wedocs.unep.org/bitstream/handle/20.500.11822/36803/CytSb.pdf

*This case study has been rewritten and adapted from a case study published by **UN Environment Programme**.*

Country:	Slovakia
Context:	The energy sector in the Slovak economy is crucial since impact on the 9-10% of the country's GDP. The installation of photovoltaic power plants in Mochove and Vojany is a clear example of implementation of renewables in the Slovenské elektrarne (SE), the biggest electricity-producing company in the country.
Action:	The SE employs green business practice (GBP) which contribute significantly to climate change mitigation. This includes ensuring employees at SE have a relevant awareness about environmental-related matters by participating in training and skills development appropriate to their job.
Outcome:	According to trade union representatives, the management consults them regarding the implementation of GBP that allow smoother implementation of related new technologies and working methods.
Source:	Eurofound: Slovenské elektrárne a.s. case study
Link:	https://www.eurofound.europa.eu/sv/observatories/emcc/case-studies/the-greening-of-industries-in-the-eu/slovakia-slovensk-elektrarne-as-case-study

*This case study has been rewritten and adapted from a case study published by **Eurofound**.*

Country:	Sweden
Context:	In the last decades the transition from an industrial society towards a service-oriented society foresaw the development of industrial areas in sustainable residential districts in Sweden.
Action:	Green spaces such as green roofs are fundamental for a greener city and have been implemented in Malmö due to the municipality's adoption of the 'Green Space Factor' policy which aims to maximise use of potential urban green spaces. Green roofs also form part of the stormwater management system in the Augustenborg neighbourhood of Malmö, a retrofitting action with the aim of creating more socially, economically, and environmentally sustainable neighbourhoods.
Outcome:	The city of Malmö widely implemented green roofs as consequence of the introduction of the green space factor. Altogether, there are 30 green roofs in the neighbourhood and 2,100 square meters of green roofs are provided on houses in Augustenborg only. The Augustenborg renewal project addressed a wide range of issues regarding both the built environment and social conditions. 10,000 square metres of green roofs were installed, and an open stormwater system was built along with the green spaces. Moreover, the completed stormwater management system includes a total of 6km of canals and water channels.
Source:	Think Nature: NBS case study: Malmö
Link:	https://www.think-nature.eu/wp-content/uploads/2018/08/15a-Case-studies-Malmö-NBS-MS-workshop.pdf

*This case study has been rewritten and adapted from a case study published by **XXX**.*

Country:	Turkey
Context:	Over 30 million people live in coastal areas of Turkey, where infrastructure and agricultural land is vulnerable to sea level rise. Because of climate change, reduced water availability in soils, rivers, dams, lakes, and ground reserves threatened potentially devastating consequences for agricultural production.
Action:	Climate change adaptation was integrated into national, regional and local policies by focusing on three pillars: 1) Policy - the efficient use of current policies and in the development of new policies and strategies in the context of climate change adaptation; 2) Science and Integration - establishing tools that support adaptation efforts by using the best available technology and data, and making information available at all levels of the community; 3) Implementation - realising adaptation implementation from local to central levels at varying scales and monitoring and evaluating processes from economic, social and environmental aspects
Outcome:	Key achievements of the programme include: 1) The production of the National Climate Change Adaptation Strategy and Action Plan, which considers the participatory vulnerability assessment and the review of existing legislation. 2) A capacity development programme was developed, and trainings were held for government officials, civil society, and universities. Topics included climate data analysis, carbon management and early warning and monitoring systems.
Source:	Sustainable Development Goals Fund, 'Case Study: Strengthening capacity to adapt to climate change in Turkey'
Link:	https://www.sdqfund.org/sites/default/files/case_study_-_turkey_-_en.pdf

*This case study has been rewritten and adapted from a case study published by **Sustainable Development Goals Fund**.*