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U-GREEN
Knowledge Toolkit

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Content

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1. INTRODUCTION

U-GREEN Knowledge Toolkit is the forth Result (R4) obtained through the U-GREEN Project (University cooperation for promoting the GREEN transition and sustainable practices in education and training) co-funded by the European Union under the frame of the Erasmus+ Programme, Action Type KA2020-HED-Cooperation partnerships in higher education, in the Round 1 of Call 2021.

1.1. U-GREEN PROJECT'S GOALS

The transition towards a resource-efficient, circular, digitised and climate neutral economy requires a change in peoples' behaviour and new skills to think and act green, starting with Education and Training institutions as catalysts of change. Education and Training institutions, through their leaders, professionals, and experts, have a fundamental role in:

- Training and empowering the next generation of EU citizens and workforce.
- Generating and transferring knowledge and practices to society in order to solve global problems.
- Introducing green and sustainable practices.

More than ensuring that buildings meet today's energy standards, the greening of Education and Training institutions needs skilled teaching and non-teaching staff that cooperate towards embedding green and sustainability practices and that lead by example to enable a change in their local ecosystems.

Even though there are international rankings addressing the sustainability performance of HEIs (Higher Education Institutions), they tend to focus more on infrastructural or quantitative aspects. However, the common vision of the U-GREEN Consortium is that the greening of Education and Training institutions is a process that extends beyond the use of resources; it requires a true transformation of teaching and learning and of how institutions operate, are managed and reach out to their local communities.

U-GREEN Consortium members have been working towards promoting, in their institutional ecosystem and among local communities, sustainable development, and they are aware that Education and Training Institutions share the same mission and a common need to:

- Reduce the environmental footprint and enhance the greening of institutions from a transversal point of view;
- Promote the adoption of green and sustainability principles and embed such principles in all aspects of HEIs action, including as part of curricula, teaching and learning, and mobility;
- Favour sustainability education and the development of green skills, as well as to build the capacities of staff to become agents of change and master the green transition;

- Empower Education and Training institutions in acting as catalysts and in promoting behavioural change that supports the green transition among students and the wider community;
- Reinforce working networks at EU level, promote the exchange of practices and experiences and test new cooperation models for more inclusive ecosystems;
- Strengthen the role of HEIs (Higher Education Institutions) in generating and transferring the knowledge and skills that will help society to address common problems, such as climate, environmental and sustainability challenges.

Moreover, by reinforcing transnational cooperation, U-GREEN will also contribute to:

- Make the vision for the European Education Area by 2025 a reality;
- Work towards achieving the priorities defined in the Council Resolution on a Strategic Framework for European Cooperation in Education and Training towards the European Education Area and beyond (2021-2030);
- Enhance green readiness and digital transformation of Education and Training institutions;
- Introduce new cooperation models with lower environmental impact;
- Increase/update the training offer focused on green skills;
- Favour new approaches for promoting behavioural change in the educational and wider community.

In particular, the U-GREEN Project intends to undertake the goals shared in the common mission of the U-GREEN Consortium and, moreover, specific objectives of the project are:

- To foster sustainable Education and Training infrastructures by providing easily adoptable standards on topics such as energy efficiency, water consumption, heating and cooling systems, sustainable food, recycling and waste management, digitalization practices, as well as how to engage the community.
- To raise-awareness on how to adopt green and sustainability principles among
  teaching and non-teaching staff and to increase the number of HEIs professionals
  that master more green/sustainable alternatives and strategies.
- To embed green and sustainability principles in curricula and to promote the development of green skills among a new generation of committed European citizens.
- To strengthen and implement new cooperation models among Education and Training institutions and to promote the exchange of practices and experiences.

U-GREEN will tackle these needs by:

- Establishing a set of common standards, practices and approaches to support the green transition in in 3 main areas: Infrastructure & Resources; Administrative Management, Teaching & Learning; Community Engagement and Awareness.
- Defining the U-GREEN Label, based on 3 progression levels and a labelling process with 2 assessment formats, to understand to what extent green and sustainability practices are embedded in Education and Training institutions.
- Building the capacities of Education and Training practitioners to master the green transition and implement new practices and methodologies in line with the U-GREEN approach.
- Developing a **Virtual Knowledge Hub** with **Open Educational Resources** to promote the European Green Deal and to raise awareness on the topic of environmental sustainability and promote green competences among their institutional ecosystems.

1.2. U-GREEN CONSORTIUM

A consortium of nine institutions (including 8 Higher Education Institutions-HEIs/Universities) has been created for the development of this project. These are the members of this consortium:

- **Agricultural University of Iceland – AUI (Iceland)**

  Focuses on sustainable use of land and animal resources, including traditional agriculture, horticulture and forestry, nature conservation, environmental planning, landscape architecture, planning, restoration sciences and sustainable development.

- **Agricultural University – Plovdiv (Bulgaria)**

  Occupies leading positions in Crop Science, Animal Breeding and Husbandry and Plant Protection in Bulgaria, according to the Rating System of the Higher Education Institutions.

- **Paris Sup'Biotech (France)**

  Trains the best biotechnology engineers in Europe through a multidisciplinary approach that brings together science and engineering, management skills, industrial knowledge of national and international biotechnology markets.

- **Polytechnic University of Coimbra – PUC (Portugal)**

  PUC is a Higher Education Institution and was founded in 1979. It is composed by 6 colleges, inheriting the tradition and experience which makes it today one of the largest polytechnic schools in the country and one of the top 10 among Portuguese HEIs.

- **University College of the Province of Liège – HEPL (Belgium)**

  Collaborates closely with the educational, social, economic, and cultural environment, providing services to the community and developing partnerships with professional circles.

- **University of Almeria – UAL (Spain)**

  UAL has achieved a high specialization in the agri-food sector, being one of the leading Spanish universities in agricultural sciences, biotechnology, engineering, and others linked, as business or law.

- **University of Modena and Reggio Emilia – UNIMORE (Italy)**

  Founded in 1175, it is one of the oldest universities in the world with strong links to industry and numerous companies producing agricultural machinery, automated industrial equipment, etc.

- **Warsaw University of Life Sciences – SGGW (Poland)**

  The oldest life sciences university in Poland and one of the firsts in the world. It focuses on sustainable rural development, resource protection, biodiversity, and socio-cultural environment.

- **INCOMA (Spain)**

  It is a training and research centre with extensive know-how and experience in the development and coordination of international cooperation projects mainly funded within the framework of EU programmes, especially in the field of education, training, and research.

1.3. U-GREEN KNOWLEDGE TOOLKIT OBJECTIVES

Promoting Green Competences through Education and Training

The European Green Deal represents a transformative vision for a sustainable future, aiming to make Europe the first climate-neutral continent by 2050. At its core, the Green Deal seeks to address pressing environmental challenges, such as climate change, biodiversity loss, pollution, and resource depletion, by promoting policies that foster sustainability, innovation, and inclusiveness. However, achieving these ambitious goals requires more than just policies—it demands a widespread shift in attitudes, knowledge, and skills across all sectors of society.

Education and training institutions are pivotal in driving this transition by equipping individuals with the competencies necessary to thrive in a green economy. These institutions are uniquely positioned to raise awareness about environmental

sustainability, inspire action, and cultivate the green skills essential for future jobs and industries.

This Toolkit of Training Resources has explicitly been designed for educational and training organisations to support their efforts in embedding the values and principles of the European Green Deal into their curricula and institutional practices. It offers a comprehensive set of resources aimed at fostering awareness, building green competencies, and empowering learners, educators, and staff to participate actively in the green transition.

Objectives of the Toolkit

1. **Raise Awareness**: Provide educational resources and materials that increase understanding of the European Green Deal, environmental sustainability, and climate action among diverse audiences within the institutional ecosystem.
2. **Promote Green Competences**: Offer tools to develop key green skills, such as critical thinking, problem-solving, resource efficiency, and climate literacy, which are essential for the future workforce and for fostering a sustainable mindset.
3. **Encourage Action**: Inspire individuals and institutions to adopt sustainable practices and become champions of environmental responsibility within their communities, thereby contributing to Europe's green transformation.
4. **Foster Collaboration**: Enable collaboration across sectors and disciplines by promoting partnerships and knowledge sharing, essential for holistic approaches to environmental sustainability.

By integrating these resources into their educational strategies, institutions can play an instrumental role in advancing the European Green Deal, preparing the next generation to lead Europe toward a sustainable and resilient future. This Toolkit will serve as a foundational resource for education providers who seek to build a culture of environmental awareness and empower learners to contribute actively to the global green transition.

2. EXISTING RESOURCES AVAILABLE IN THE EDUCATIONAL OFFER OF CONSORTIUM PARTNER INSTITUTIONS

No	HEI name	Title of the course	Target group *e.g. For what kind of students the course is addressed? Bachelor / Master / PhD)*	ECTS / Time required	Language of instruction	Available materials/ resources *(E.g. presentations, films, interactive tasks*	Does the course content link to any of the following topics of Micro-Trainings?			
							1. The European Green Deal: becoming a resource-efficient society by 2050	2. Thinking and Acting Green: what it is, for whom and how to do it	3. Skills for emerging labor market needs, green jobs, and new professional profiles	4. Green Transformation at work and beyond
1.	SGGW	Obtaining and processing photogrammetric materials collected using an unmanned aerial platform in forest areas	bachelor, master	no data	Polish	no data	no	no	no	no
2.		Processing and practical use of data obtained from an unmanned aerial platform for forestry purposes	bachelor, master	no data	Polish	no data	no	no	no	no

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3.		Determining the optimal location of photovoltaic cells for a selected facility on the SGGW Campus based on laser scanning data	bachelor, master	no data	Polish	no data	no	partly	no	partly
4.		SWOT analysis	bachelor, master	no data	Polish	no data	partly	partly	partly	partly
5.		Designing selected elements of a forest road using AutoCAD - part 1	bachelor, master	no data	Polish	no data	no	no	no	no
6.		Optimization of the forest road network using Qgis software, part 2 MOOCs	bachelor, master	no data	Polish	no data	no	no	no	no
7.		Designing selected elements of a forest road using AutoCAD - part 2	bachelor, master	no data	Polish	no data	no	no	no	no
8.		Rational and irrational numbers	bachelor, master	no data	Polish	no data	no	no	no	no
9.		Functions, mappings, relations (II)	bachelor, master	no data	Polish	no data	no	no	no	no
10.		Basics of meteorology and elements of using weather knowledge in practice - distance course	bachelor, master, PhD	no data	Polish	no data	no	no	no	no
11.		Sustainability: reference context and practical cases	PhD student	9 hours	Italian/ English	Presentation (pdf) - Video	partly	partly	no	no
12.	UNIMORE	Climate Change	PhD student	9 hours	Italian	Presentation (pdf)	partly	partly	no	no
13.	PUC	Microcredenciação em Sustentabilidade Ambiental	Students from European consortium partner	4 ECTS | 80 hours	Portuguese | English	https://www.ipc.pt/oferta-formativa/microcredenciacao-em-	yes	yes	partly	partly

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			institutions			sustentabilidade-ambiental/				
14.		Microcredenciação em Curso de Especialização em Gestão Eficiente do Ciclo Urbano da Água		15 ECTS | school semesterart	Portuguese	https://www.ipc.pt/oferta-formativa/microcredenciacao-em-curso-de-especializacao-em-gestao-eficiente-do-ciclo-urbano-da-agua/	no	yes	yes	no
15.		Human society	Bachelor	18h	French and/or English	ppt support	partly	no	partly	no
16.		Environnemental economy	Bachelor	18h	French and/or English	not sure	partly	partly	no	no
17.		Sustainable development	Master	9h	French and/or English	not sure	yes	no	no	no
18.		Corporate Social Responsability	Master	18h	French and/or English	not sure	partly	partly	partly	partly
19.	SUP'BIOTECH	Life cycle analysis	Master	6h	French and/or English	not sure	no	partly	partly	partly
20.	UAL	Desarrollo sostenible	Master	1 hour	Spanish	https://www.un.org/sustainabledevelopment/es/o	yes	partly	no	partly

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						bjetivos-de-desarrollo-sostenible/				
21.		Desarrollo sostenible	Master	1 hour	Spanish	https://elpais.com/especiales/2019/el-co2-en-el-cambio-climatico/?fbclid=IwAR0HqyGyz1Wv0BZzS1o0vse8js4Q2QxI0H1dGXiYQgIYALzV0Ayvj5zuSvk	yes	partly	partly	partly
22.		Desarrollo sostenible	Master	1 hour	Spanish	https://abcblogs.abc.es/bacterias-batallas/curiosidades/irracional-negar-cambio-climatico.html	yes	partly	partly	partly
23.		Desarrollo sostenible	Master	1 hour	Spanish	https://www.abc.es/sociedad/abci-consecuencias-cambio-climatico-para-espana-debe-prepararse-201811091300_noticia.html#disqus_thread#ns_campaign=area-usuario-notif&ns_mchannel=autor&ns_source=sociedad&ns_linkname=hornet46&ns_fee=0	yes	partly	partly	partly
24.		Desarrollo sostenible	Master	1 hour	Spanish	https://www.abc.es/natural/cambioclimatico/abci-esto-espera-paises-	yes	partly	partly	partly

						mediterraneos-si-no-gestionan-bien-cambio-climatico-201810251003_noticia.html#vca=modulo&vso=abc&vmc=noticias-rel&vli=sociedad&ref=https://www.abc.es/sociedad/abci-consecuencias-cambio-climatico-para-espana-debe-prepararse-201811091300_noticia.html				
25.		Desarrollo sostenible	Master	1 hour	Spanish	https://gaceta.es/civilizacion/las-grietas-del-dogma-cambio-climatico-20171226-0708/	yes	partly	partly	partly
26.		Desarrollo sostenible	Master	1 hour	Spanish	https://verne.elpais.com/verne/2019/09/22/articulo/1569164351_247635.html?ssm=FB_CM	yes	partly	partly	partly
27.		Desarrollo sostenible	Master	1 hour	Spanish	https://alternativaseconomicas.coop/articulo/el-tema-del-mes/reconstruccion-verde-ahora-o-cuando	yes	partly	partly	partly
28.		Desarrollo sostenible	Master	1 hour	Spanish	https://www.mdsocialesa2030.gob.es/agenda2030	yes	partly	partly	partly

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						/documentos/eds-cast-acce.pdf				
29.		Desarrollo sostenible	Master	1 hour	Spanish	https://www.bbva.com/es/sostenibilidad/que-es-el-acuerdo-de-paris-y-que-supone-para-el-planeta/	yes	partly	partly	partly
30.		Desarrollo sostenible	Master	6 hours	Spanish	Desarrollo económico y medio ambiente	yes	partly	partly	partly
31.		Desarrollo sostenible	Master	6 hours	Spanish	La crisis ecológica	yes	partly	partly	partly
32.		Desarrollo sostenible	Master	6 hours	Spanish	El desarrollo sostenible a lo largo de la historia del pensamiento económico	yes	partly	partly	partly
33.		Desarrollo sostenible	Master	6 hours	Spanish	Origen y evolución de la idea de desarrollo	yes	partly	partly	partly
34.		Desarrollo sostenible	Master	6 hours	Spanish	La problemática del desarrollo	yes	partly	partly	partly
35.		Desarrollo sostenible	Master	3 hours	English	http://www.un-documents.net/our-common-future.pdf	yes	partly	partly	partly
36.		Desarrollo sostenible	Master	3 hours	Spanish	Conceptos e indicadores de desarrollo sostenible	yes	partly	partly	partly
37.		Desarrollo sostenible	Master	3 hours	English	https://webarchive.nationalarchives.gov.uk/ukgwa/20100407172811/https://www.hm-treasury.gov.uk/stern_review_report.htm	yes	partly	partly	partly

38.		Desarrollo sostenible	Master	3 hours	English	https://pure.iiasa.ac.at/id/eprint/15347/1/TWI2050_Report081118-web-new.pdf	yes	partly	partly	partly
39.		Desarrollo sostenible	Master	3 hours	English	https://www.oecd.org/greengrowth/1869800.pdf	yes	partly	partly	partly
40.		Desarrollo sostenible	Master	3 hours	Spanish	https://www.mdsocialesa2030.gob.es/agenda2030/documentos/IP22_AC.pdf	yes	partly	partly	partly
41.		Empresas Agrarias	Bachelor	4 hours	Spanish	Gestión ambiental en la empresa agraria	yes	partly	partly	partly
42.		Dirección Estratégica	Master	8 hours	Spanish	Emprendimiento y Estrategias de Negocio	yes	partly	partly	partly
43.		Dirección Estratégica I	Bachelor	4 hours	Spanish	Los objetivos y valores de la empresa. Objetivos de Desarrollo Sostenible. Estudio de un caso	yes	partly	partly	partly
44.		Creación de Empresas	Bachelor	4 hours	Spanish	Indicar qué acciones y estrategias llevan a cabo las empresas para potenciar la sostenibilidad social y ambiental, así como el impacto sobre los ODS	yes	partly	partly	partly
45.		Auditorías Ambientales y Normalización	Bachelor	8 hours	Spanish	Estudio de los conceptos básicos de gestión de la calidad y el	yes	partly	partly	partly

						medioambiente, principales herramientas y los procesos de auditoría.				
46.		Innovación docente e investigación en ciencias sociales, económicas y jurídicas: experiencias de cambio en la metodología docente	Both	6 hours	Spanish	Satisfacción del alumnado con la metodología de aprendizaje servicio para la formación en sostenibilidad en estudios de Grado	partly	partly	partly	partly
47.		ODS y educación inclusiva en la educación superior: experiencias y propuestas transdisciplinares de innovación docente	Both	6 hours	Spanish	El uso de la metodología del aprendizaje servicio para la formación en sostenibilidad en estudios de Grado. una aplicación práctica				
48.		Organización y Gestión de Empresas	Bachelor	1 hours	Spanish	Compromiso con la sostenibilidad y la inclusión de los ODS en el ámbito de la dirección y gestión de empresas	yes	partly	partly	partly
49.		ECOLOGICAL RESTORATION AND GLOBAL ENVIRONMENTAL CHALLENGES	Master/PhD	4	ENG	Presentations	partly	yes	partly	yes
50.		ECOLOGICAL RESTORATION AND SUSTAINABLE AGRICULTURE	Master/PhD	4	ENG	Presentations	partly	yes	partly	yes
51.	LBHI	Sustainable Developement	BS	4	ICELANDIC	Presentations	partly	yes	no	yes

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3. U-GREEN MICROTRAININGS

3.1. STRUCTURE

The U-GREEN microtraining is divided into 4 modules:

1. The European Green Deal: becoming a resource-efficient society by 2050
2. Thinking and Acting Green: what it is, for whom and how to do it
3. Skills for emerging labor market needs, green jobs, and new professional profiles
4. Green Transformation at work and beyond

The structure of the module emphasizes both theoretical knowledge and practical application. With a blend of multimedia content, interactive assessments, and case studies, learners are encouraged to engage deeply with the material and understand the broader implications of the European Green Transformation.

Each module in microtraining is designed for online delivery, with a duration of 2-3 hours, and consists of two or three main topics, each lasting 55-75 minutes. The training is conducted in English and requires individual work.

The structure of each module is carefully organized to facilitate comprehensive learning. It begins with an introduction, followed by a combination of text and video presentations that provide foundational knowledge. Each module is divided into topics, then into sections, with specific time allocations for different parts, ensuring a balanced mix of reading and multimedia learning. After each key section, participants are given interactive tests with 10 questions to reinforce their understanding.

The topics in each module also include original materials crucial for deeper engagement, allowing participants to explore the subject matter beyond the basics. Additionally, a collection of curated supplementary resources, each with a brief description, is provided to enhance learning and give context to real-world applications of the main topic principles. The module concludes with a glossary, helping participants familiarize themselves with key terms and abbreviations, ensuring they fully grasp the language and concepts used throughout the training.

3.2. MODULE I

THE EUROPEAN GREEN DEAL: BECOMING A RESOURCE-EFFICIENT SOCIETY BY 2050

GENERAL INFORMATION ABOUT MICROTRAINING

MICROTRAINING OVERVIEW:

Welcome to the course "The European Green Deal: Becoming a resource-efficient society by 2050"! This program is designed to provide a comprehensive understanding of EU's response to the climate crises through the establishment of the European Green Deal along with knowledge of innovative research projects and green partnerships.

TOPIC 1: Principles and targets: EU's Response to the Climate Crisis

In this topic, we will explore EU's response to the climate crisis with an emphasis on the European Green Deal, which is a comprehensive roadmap for transforming the EU's economy into a sustainable and climate-friendly model. It aims to turn environmental challenges into opportunities across all policy areas while ensuring a just and inclusive transition for everyone.

TOPIC 2: Research and Innovations: Green Deal Research Projects and Green Partnerships

This topic focuses on the framework for Green Deal research projects, including the forms of research cooperation available under the Green Deal calls, and to provide inspiration from already implemented research and innovation projects.

MICROTRAINING SPECIFICS

- SETTING: On-line
- DURATION: 2-3 h
- MATERIALS: 1 microtraining contains **2 topics (55-75 min each)**
- TOPICS:

  1. Principles and targets: EU's Response to the Climate Crises. Blueprint for Transformational Change.

  2. Research and Innovations (Green Deal Research Projects and Green Partnerships; Successful Projects)
- LANGUAGE: English
- INDIVIDUAL WORK

WHAT WILL YOU GAIN?

In this training you will:

- Get familiar with the Green Deal Core Concepts and Objectives Framework for a Green Deal Response to the Climate Crisis
- Explore how the deal turns environmental challenges into opportunities across all policy areas
- Dive into the concept of climate neutrality by 2050, where emissions match nature's absorption capacity
- Learn about the goal of ensuring a just and inclusive transition for everyone
- Check the available forms of research cooperation under the Green Deal call
- Get inspired by already implemented EU Horizon 2030 research and innovation projects

MICROTRAINING INTRODUCTORY VIDEO:

Link: Introductory video

TOPIC 1: Principles and targets: EU's Response to the Climate Crises

AUTHORS: Dr. Johanna Gisladottir, Agricultural University of Iceland, Iceland

STRUCTURE OF THE TOPIC 1:

1. Introduction (5 min)
2. Video presentation 1 (8 min)
3. Reading 1: The climate crisis (7 min)
4. Video presentation 2 (11 min)
5. Reading 2: EU's response: the European Green Deal (7min)
6. Test (5-10 min)
7. Additional materials (30-40 min)
8. References
9. Glossary

INTRODUCTION

The importance of tackling greenhouse gas emissions is emphasised in the UN Environment Programme's Emissions Gap Report 2023. The Paris Agreement hasn't stopped the rise in global emissions. We need to cut emissions by 28% (2°C pathway) or 42% (1.5°C pathway) in order to reach the Paris targets.

The essential thresholds for Earth's stability, or planetary boundaries, are identified by the Stockholm Resilience Centre. Sadly, six of the nine boundaries—including freshwater pressure, biodiversity loss, and climate change—have already been crossed. Maintaining a robust balance requires immediate action.

Our current resource consumption exceeds what one Earth can sustain. To combat this, the European Union (EU) launched the ambitious European Green Deal, aiming for a climate-neutral continent by 2050. The EU commits to net zero greenhouse gas emissions, cutting emissions through trading schemes, renewable energy support, and a 55% reduction from 1990 levels by 2030.

The Green Deal encompasses all economic sectors, aiming to decouple resource use from economic growth. The European Climate Law solidifies the EU's commitment to becoming the first climate-neutral continent. Funding and investments will support climate action. Private sector involvement is crucial through sustainable financing and transparency frameworks.

VIDEO PRESENTATION 1

Link: video presentation 1

READING 1: The climate crisis

The consumption of resources in our world is increasing due to a number of variables. Positive trends in the adoption of renewable energy across sectors are seen in the Renewables 2023 Global Status Report. These trends are impacted by the global energy crisis, rising fossil fuel prices, and climate change commitments. The need for resources will, nevertheless, increase over the next few decades, according to the Global Resources Outlook 2024.

The UN Environment Programme's Emissions Gap Report 2023 presents important research on greenhouse gas emissions. The world's emissions are still rising even after the Paris Agreement. We need to cut emissions by 28% (2°C pathway) or 42% (1.5°C pathway) in order to reach the Paris targets.

The Stockholm Resilience Centre identifies planetary boundaries—critical thresholds for Earth's stability. Six out of nine boundaries have been crossed, including climate change, biodiversity loss, and freshwater pressure. Urgent action is needed to safeguard our delicate balance and ensure a resilient future.

In 2023, Earth Overshoot Day arrived on August 2, marking when humanity exceeds nature's annual budget. We currently use resources at a rate equivalent to 1.7 Earths.

VIDEO PRESENTATION 2

Link: video presentation 2

READING 2: EU's Response: The European Green Deal

The European Union (EU) launched the ambitious European Green Deal policy project with the goal of making the continent a climate-neutral society by 2050. In light of the climate issue, the EU decided to use this unique opportunity and acknowledged the gravity of the challenge.

Climate neutrality is one of the main goals of the Green Deal. By 2050, the EU wants to have net zero emissions of greenhouse gases. This entails cutting emissions by enacting emissions trading schemes and supporting renewable energy sources, among other climate change initiatives. The target is to reduce net greenhouse gas emissions by at least 55% from 1990 levels by 2030.

All economic sectors are included under the Green Deal, including energy, buildings, transport, agriculture, and a variety of businesses. It aims to separate resource usage from economic growth. With the enactment of the European Climate Law, the EU has committed to making Europe the first climate-neutral continent in history by the year 2050. The Green Deal's goals will require a large financial commitment to be met. At least 25% of the EU's long-term budget is suggested to be used on climate action. It is anticipated that the private sector will make a contribution in the form of sustainable financing, transparency frameworks, investment instruments, and a taxonomy of sustainable operations.

The goal of the European Climate Pact is to provide organisations, communities, and individuals the tools they need to fight climate change and create a sustainable future. It promotes interacting with people, putting ideas into practice, and learning about climate change. The EU's Biodiversity Strategy also prioritises supporting international environmental standards, stopping the deterioration of ecosystems, and conserving the natural world. The EU aims to take the lead in tackling climate and environmental issues through trade and international collaboration.

TEST

Questions	Correct answer*
1. In which month did Earth Overshoot Day occur in 2023? A. March B. April C. June D. August E. September	
2. How many out of the 9 planetary boundaries have we crossed as of 2023? A. 5 B. 6 C. 7 D. 8 E. 9	
3. How many animal and plant species are currently threatened with extinction? A. 10.000 B. 100.000 C. 1 million	

D. 10 million E. 100 million	
4. How many Sustainable Development Goals are there? A. 15 B. 16 C. 17 D. 18 E. 19	
5. When was the European Green Deal adopted? A. 2015 B. 2018 C. 2020 D. 2022 E. 2023	
6. What is one of the main targets of the European Green Deal? A. That Europe becomes the first climate-neutral continent by 2050 B. To plant 1 million additional trees by 2025 C. To establish the 'Farm-to-Fork' strategy D. To introduce carbon pricing E. To build the 2030 Biodiversity strategy for Europe	
7. Which sectors of the economy does the European Green Deal cover? A. Steel B. Transport C. Energy D. Agriculture E. All sectors	
8. What are key elements of the European Climate law? A. Cost-effective measures to reduce emissions B. Legally binding climate targets C. Macroeconomic incentives D. The Energy Efficiency Directive E. At least a 60% less net greenhouse gas emissions by 2030 compared to 1990 levels	
9. What are the three building blocks of the European Commission's sustainable financing framework? A. EU taxonomy, a disclosure framework and investment tools B. Carbon pricing, ETS and polluter-pays principles C. Macroeconomic stability, economic growth and investment tools D. EU taxonomy, macroeconomic stability and economic growth E. A disclosure framework, transparency and investment tools	

10. What opportunities does the European Climate Pact offer to individuals and communities? A. Learn about climate change B. Develop and implement solutions C. Connect with others and maximize the impact of these solutions D. All of the above E. None of the above	
*Corrects answers: 1D, 2B, 3C, 4C, 5C, 6A, 7E, 8B, 9A, 10D	

ADDITIONAL MATERIALS

1.	EU action to address the energy crisis – European Commission (europa.eu)	The energy crisis has led to a sharp rise in energy prices and brought hardship for Europeans. The EU is taking strong action to address that, and this web page details how.
2.	A Reassessment of the European Union's Response to Climate-related Security Risks (sipri.org)	This SIPRI Insights on Peace and Security investigates how climate-related security risks have been framed and responded to by different EU bodies in recent years.
3.	European Union policies and their role in combating climate change over the years | Air Quality, Atmosphere & Health (springer.com)	This article reviews the main policies that have been implemented in the EU to reduce environmental problems and the scope of climate change conferences.
4.	Strategies to achieve a carbon neutral society: a review | Environmental Chemistry Letters (springer.com)	The authors present a strategy to reach a carbon neutral economy by examining the outcome goals of the 26th summit of the United Nations Climate Change Conference of the Parties (COP 26).
5.	Debunking eight common myths about climate change (unep.org)	Many believe – or at least say they believe – that climate change is not real, relying on a series of well-trodden myths to make their point. But here is a

		closer look at eight common climate-related myths and why they are simply not true.
6.	About Doughnut Economics | DEAL	The Doughnut offers a vision of what it means for humanity to thrive in the 21st century – and Doughnut Economics explores the mindset and ways of thinking needed to get us there.
7.	A resource-efficient Europe — European Environment Agency (europa.eu)	The flagship initiative for a resource-efficient Europe provides a long-term framework for actions in many policy areas, supporting policy agendas for climate change, energy, transport, industry, raw materials, agriculture, fisheries, biodiversity and regional development.
8.	What is the just transition and what does it mean for climate action? – Grantham Research Institute on climate change and the environment (lse.ac.uk)	This page on LSE's website introduces the concept of 'just transition' as well as several assessment frameworks and tools.
9.	Introduction to Just Transition: A Business Brief | UN Global Compact	A report aimed at exploring the role of business in ensuring a just transition from the United Nations Global Compact.
10.	Investing in Resource Efficiency: The Economics and Politics of Financing the Resource Transition | SpringerLink	Provides an in-depth account of the incentives and trade-offs associated with the economics and politics of advancing resource efficiency

REFERENCES

1. European Commission, Directorate-General for Climate Action. (2019). Going climate-neutral by 2050 – A strategic long-term vision for a prosperous, modern, competitive and climate-neutral EU economy. Publications Office. DOI: 10.2834/02074

2. United Nations General Assembly. (2015). Transforming our world: the 2030 Agenda for Sustainable Development [Resolution]. Available online: Transforming our world : the 2030 Agenda for Sustainable Development (accessed on 18 June 2024).

3. UNEP. (2015). The United Nations Environment Programme and the 2030 Agenda: Global Action for People and the Planet. Available online: The United Nations Environment Programme and the 2030 Agenda (accessed on 18 June 2024).

4. The European Green Deal: EU's Response to Climate Change. Available online: EEAS.

5. European Commission. (n.d.). Delivering the European Green Deal. Available online: Delivering the European Green Deal.

6. Resource Panel. (2024). Global Resources Outlook 2024. Available online: Global Overview.

7. UNEP. (2023). Global Resources Outlook 2023. Available online: EGR2023.pdf.

8. Stockholm Resilience Centre. Planetary boundaries. Available online: Planetary boundaries.

9. Global Footprint Network. Earth Overshoot Day. Available online: Earth Overshoot Day.

10. Ritchie, H., Spooner, F., & Roser, M. (2022). Biodiversity. Published online at OurWorldInData.org. Retrieved from: Biodiversity.

11. UNFCCC. A Beginner's Guide to Climate Neutrality. Available online: UNFCCC.

12. European Union. (2021). European Climate Pact. Available online: European Climate Pact.

13. European Commission. (2021). EU Biodiversity Strategy for 2030. Available online: EUR-Lex.

14. European Commission. (n.d.). Factsheet: EU Biodiversity Strategy. Available online: factsheet-EU-biodiversity-strategy_en.pdf.

GLOSSARY

Abbreviation	Description
SDG	Sustainable Development Goals
EU	European Union

TOPIC 2: Research and Innovations (Green Deal Research Projects and Green Partnerships; Successful Projects)

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STRUCTURE OF THE TOPIC 1:

1. Introduction (5 min)
2. Video presentation 1 (15 min)
3. Reading 1: The climate crisis (7 min)
4. Video presentation 2 (8 min)
5. Reading 2: EU's response: the European Green Deal (7min)
6. Test (5-10 min)
7. Additional materials (30-40 min)
8. References
9. Glossary

INTRODUCTION

Research and innovation will play a central role in fulfilling Europe's commitment to tackle climate change and to become the world's first climate neutral continent by 2050. To mobilise this potential, the Commission made €1 billion available in the Horizon 2020: The Green Deal Call. A total of 73 projects that will contribute to a just and sustainable European transition have been selected for funding. They are sharing their experiences in five working groups: clean energy, climate change and biodiversity, food and health, urban environment and transport, and knowledge and citizens. The aim of this part of the training is to introduce the framework for Green Deal research projects, including the forms of research cooperation available under the Green Deal calls, and to provide inspiration from already implemented research and innovation projects.

Research and innovation projects, like those from Horizon Europe, their goals and connections with the Green Deal will be introduced in that part. Also, European Green Deal working groups and green partnerships will be discussed. European partnerships not only for the green transition but also for an innovative Europe and open science, for health resilience and industrial transition will be discussed as pillars of the Green Deal strategy. Finally, the green missions and green research and innovation rules will be presented as well.

VIDEO PRESENTATION 1

Link: video presentation 1

READING 1: Research and Innovation (R&I) for the European Green Deal

Research and Innovation are key drivers of productivity, economic growth as well the transition of EU to become a climate neutral continent. The European Green Deal Research and Innovation Projects contributes to develop of the climate technologies, biodiversity, agriculture, and building of the inclusive and resilience societies.

Horizon Europe 2021-2027 is the ninth framework programme for research and Innovation. It is one of the main sources of EU funding, with EUR 13,46 billion allocated to climate, energy and mobility initiatives. Under this programme the European Commission announced calls for EUR 1 billion in 2020 and selected 73 projects.

As the Horizon Europe requires, all scientific research and innovation should 'do not significant harm' (DNSH) to EU environment objectives. It means that all projects must now demonstrate that they comply with the six environmental goals set by European Council and Parliament. The need to conduct a DNSH assessment results from art. 17 of EU 2020/852 Regulation. The six environmental objectives are: (i) climate change mitigation; (ii) climate change adaptation; (iii) sustainable use and protection of water and marine resources; (iv) the transition to a circular economy; (v) pollution prevention and control; (vi) the protection and restoration of biodiversity and ecosystem. The Commission has published guidance on how to deal with these new requirements (European Commission (2012).

VIDEO PRESENTATION 2

Link: video presentation 2

READING 2: Green Partnerships

The European Commission works with public and/or private partners to address key environmental challenges and pursues joint research and innovation initiatives. Cooperation with those partners enables the Commission to coordinate its actions and helps to avoid duplication of investment. The European Partnership creates also opportunities for wider involvement of EU citizens and stakeholders in taking actions at local and regional level. The Horizon Work Programme 2021, a dedicated to the topic on citizen engagement, assumes supporting communities in their efforts to implement solutions and innovations in the context of adaptation to climate and environmental change.

The Horizon Europe Programme defines the condition and principles of operation within European Partnerships and lists three types of them. The Co-Programmed European Partnerships bring together the European Commission with mainly private and sometimes public partners. Under those partnerships the Commission can engage with industrial companies to increase investment in research and development and

take actions to implement climate and sustainable development policies. There are Co-funded European Partnership using programme co-fund action. These are partnerships involving EU countries with research funders and other public authorities at the core of consortium. There are also Institutionalised European Partnerships. They concern research and innovation projects between the Union, EU member states and/or the industry. Partnerships of this type will only be implemented when other types of partnerships fail to achieve the intended aims and expected result.

TEST	
Questions	**Correct answer***
1. Where does the name TECLA come from? A. Technology and Clay B. Technology and Collaboration C. Trends and Collaboration	
2. Where does the Natural Capital Laboratory project take place? A. France B. UK C. Poland	
3. What kind of technology has been used in the TECLA project? A. 2D B. 3D C. 4D	
4. How much of the budget of Horizon Europe is dedicated to the fight against climate change? A. Less than 10% B. There is no data available for this C. More than 30%	
5. How many Green Deal projects have already been selected for implementation through the Horizon Europe calls? A. 20 B. 10% of every call C. 73 projects	
6. What is the name of the form of research cooperation within Horizon Europe that aims to promote synergy between the activities of private and public entities? A. European Partnerships B. Joint Research Centers C. Public-Private Clusters	
7. What is the main objective of EU green missions in Horizon Europe? A. to focus on areas of research that have not yet been explored B. to deliver concrete solutions and results by 2030 C. to improve the legislative processes involved in implementing innovation	

8. What is the main objective of working groups of Green Deal projects? A. to raise awareness of the projects and facilitate collaboration, networking, and knowledge sharing B. working together on the necessary legislative changes in each area C. developing guidelines for public education in selected thematic areas	
9. In which country the world's tallest Horizon 2020 wooden building is located? A. France B. Sweden C. Portugal	
10. What is the main research objective of the Natural Capital Laboratory project? A. to become a living environment for identifying, quantifying and assessing the impacts of re-wilding B. to propose innovative technological solutions to produce healthy food C. to monitor the state of the green economy in Europe	
*Correct answers: 1A, 2B, 3B, 4C, 5C, 6A, 7B, 8A, 9B, 10A	

ADDITIONAL MATERIALS

1.	https://birchfieldhighlands.org/about-us/	NATURAL CAPITAL LABORATORY, Scotland, UK
2.	https://www.mcarchitects.it/en/projects/tecla-technology-and-clay	TECLA, Massa Lombarda, Italy
3.	Carbon negative skyscraper completed - Construction Briefing	Sara Cultural Centre, Skellefteå, Sweden
4.	http://www.johngilbert.co.uk/?portfolio_page=niddrie-road-retrofit	107 Niddrie Road, Glasgow, UK
5.	https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/848bee12-3de9-11ec-89db-01aa75ed71a1	European Green Deal - booklet
6.	https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/results-horizon-2020-european-green-deal-call-following-kick-event-celebrate-73-projects-selected-2021-11-05_en	News Article: Results of Horizon 2020 European Green Deal call: following up to the kick-off event to

		celebrate the 73 projects selected for funding
7.	https://projects.research-and-innovation.ec.europa.eu/en/strategy/strategy-2020-2024/environment-and-climate/european-green-deal/green-deal-projects-support	Green Deal Support Office website
8.	https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en	Horizon Europe website
9.	https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/european-partnerships-horizon-europe_en	European Partnerships in Horizon Europe
10.	https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe_en	EU Missions in Horizon Europe
11.	https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf	EU Grants: Horizon Europe Program Guide (Version 4).
12.	https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/european-partnerships-horizon-europe_en).	Further reading on types of partnerships.

REFERENCES

1. The European Green Deal: EU's Response to Climate Change. Available online: EEAS.
2. European Commission. (n.d.). Delivering the European Green Deal. Available online: Delivering the European Green Deal.
3. Why strategic partnerships are a business model for the green transition. 2023. World Economic Forum

https://www.weforum.org/agenda/2023/12/why-strategic-partnerships-are-a-business-model-for-the-green-transition/

GLOSSARY

Abbreviation	Description
EU	European Union
R&I	Research & Innovation
R&D	Research & Development
NCL	Natural Capital Laboratory
3D	three-dimensional
WASP	World's Advanced Saving Project
EGD	European Green Deal

CONCLUSIONS

The first part of the training introduced the climate crisis and EU's response to it through the European Green Deal. The European Green Deal aims for a climate-neutral EU by 2050, with net zero emissions, renewable energy support, and a 55% reduction from 1990 levels by 2030.

The European Green Deal represents a comprehensive effort across economic sectors to decouple resource use from growth. The European Climate Law further solidifies the EU's commitment to becoming the world's first climate-neutral continent, emphasizing funding, investments, and private sector engagement in sustainable financing and transparency frameworks.

In the second part of the training, we introduced the framework for Green Deal research projects and then gave an overview of the forms of research cooperation available under the Green Deal calls (Research Cooperation in Working Groups, Green Partnerships, Green Missions). European partnerships not only for the green transition but also for an innovative Europe and open science, for health resilience and industrial transition were discussed as pillars of the Green Deal strategy. Also, in that part were presented some inspiring examples of already implemented research and innovation projects aimed at supporting a just and sustainable European transition.

European Green Deal is not only an initiative to deal with new European regulations according to climate change. It is a mission, movement, and strategy for long-term solutions. It relates to research and innovations, open science, health resilience, and industrial transition. Introduced in that part project, its goals and examples of partnerships are strictly connected with green transformation.

3.3. MODULE II

THINKING AND ACTING GREEN: WHAT IT IS, FOR WHOM AND HOW TO DO IT

GENERAL INFORMATION ABOUT MICROTRAINING

MICROTRAINING OVERVIEW:

Module II presents the key areas and strategies of the EU related to the Green Transition. It also emphasizes the consumer's and producers' behavioural transformation and growing responsibilities that led to policy consideration and improved environmental policy framework with greater ambitions. The EU has a broad measures of mitigation policy measures and tools. The module presents the evolution of the EU's legal basis through the treaty and the link to sustainable development goals. The main strategies and action plans are presented to explain the EU's leading role in setting the environmental ambition and aiming for climate neutrality by 2050. Farm to Fork Strategy is pointed out as a step toward fair and environmentally-friendly food systems alongside fairer economic returns and competitiveness. The EU's commitment to the Sustainable Development Goals and Agenda 2030 led to the implementation of various documents and horizontal strategies. In addition, the module presents the activities and achievements of the U-GREEN consortium related to green transition. The Green Offices, Green Laboratories, The Sustainability Teams, The Campus as Living Lab and Reinforce Actions are highlighted. They present the strong commitment of the universities.

MICROTRAINING SPECIFICS

- SETTING: On-line
- DURATION (HOURS): 2-3 h
- MATERIALS: 1 microtraining contains 3 topics
- TOPICS:

1. Ecological Thoughts and Actions

2. New European Bauhaus - Building for Greener Lifestyles, Biodiversity and Ecosystem Protecting Plan, Farm to Fork strategy, Environmentally Friendly Transport

3. Green Transformation of U-GREEN consortium: Administrative, Researches or Students Initiatives

- LANGUAGE: English
- INDIVIDUAL WORK

WHAT WILL YOU GAIN?

In this training you will:

- gain basic knowledge about the transformation in societal attitudes towards change and willingness for a green transition and sustainable consumption and production;
- explore and learn about the general framework of EU environmental policy;
- gain knowledge about the latest Environmental Action program priorities;
- learn about the EU's new horizontal strategies with a focus on the Farm to Fork strategy that underpins the Green Deal.

MICROTRAINING INTRODUCTORY VIDEO

Link: introductory video

TOPIC 1: Ecological Thoughts and Actions

AUTHORS: Rositsa Beluhova-Uzunova, Agricultural University-Plovdiv, Bulgaria

STRUCTURE OF THE TOPIC 1:

1. Introduction (5 min)
2. Video presentation 1 (10 min)
3. Reading 1 (7 min)
4. Video presentation 2 (10 min)
5. Reading 2 (7min)
6. Test (5-10 min)
7. Additional materials (30-40 min)
8. References
9. Glossary

INTRODUCTION

How citizens, societies and policymakers are concerned about environmental issues is critically important. Understanding opinions on the topic and support for measures to address it is linked to the societal changes and strategies of mitigation and adaptation.

The behavioural changes and the rising awareness related to emerging environmental challenges are steps towards policy actions. In this context, implementing adaptation measures requires social involvement, from the pressure towards policy ambitions to active positions and action.

The EU has become a regional and global leader in environmental policy, and efforts have grown significantly since the 1990s. This development started with a number of reforms and increased the authority on environmental issues and the higher impact of EU bodies on member states. The EU is at the centre of international aspiration to support and ensure economically, environmentally and socially sustainable development and overcome the planetary environmental challenges related to climate change, resource scarcity, pollution and biodiversity. The EU and individual member-states defined objectives to guide the continent toward green transformation. The EU environmental policy developed a framework of a multiannual Environment Action Programme (EAP) based on strategic priorities and principles. EU policymakers are adopting and implementing environmental measures and actions during different types of crises, becoming major actors at the global level.

Substantial progress in some environmental and human health aspects is present. However, the EU faces political and societal challenges associated with greening and the 2050 goals to create a resource-efficient economy with zero emissions of greenhouse gases.

VIDEO PRESENTATION 1

Link: video presentation 1

READING 1:

Public opinion on environmental issues and people's attitudes toward environmental protection are important because they can increase the willingness to act green and pressure policymakers to set goals and measures. According to Capstick et al. (2015), the first surveys for observation of public opinion environmental issues can be found in the 1980s. Initially, they were focused on awareness of environmental issues, but gradually, they started to assess commitments and actions.

According to some surveys (Capstick et al., 2015), society's awareness of environmental issues rose during 1980-1990, followed by mixed opinions and polarization during 1990-2000. The beginning of the new century marked increasing scepticism. However, after 2010, public opinion and commitments towards environmental protection goals stabilized, and there was a growing willingness to take environmentally friendly steps and actions.

Eurobarometer has published special public opinion surveys on the Attitudes of European citizens towards the environment since 2007. According to the latest survey, 94% of the citizens think protecting the environment is important to them personally. On the other hand, only 21% of the respondents declared that they had taken seven or more actions towards environmental protection in the past six months.

In addition, there are regular surveys on the topic of climate change issues and measures, as well as actions and opinions regarding the Green Deal.

Public opinion varies in different continents, regions and countries based on social, political, economic and demographic factors. However, there is growing awareness and concern related to environmental challenges in many parts of the world.

VIDEO PRESENTATION 2

Link: video presentation 2

READING 2

The world faces numerous challenges related to climate change, pollution, biodiversity issues and resource scarcity. The EU policy related to environmental protection and climate change mitigation is one of the key action areas in recent years, especially in the context of the Green Deal. The history of EU environmental policy can be traced back to 1972 when the European Council in Paris declared that the Union needed an environmental action programme. The legal basis for the EU environmental policy is Articles 11, 191 to 193 of the Treaty on the Functioning of the European Union.

EU environment policy is based on the following principles:

- Principle of precaution
- Priciple of prevention
- Prevention and rectifying pollution at the source
- The „polluter pays“ principle

The general framework of the EU environmental policy is based on:

- The Environmental Action Programme was established in 1973; the latest version is the 8th Environment Action Programme until 2030. The document sets ambitious goals related to climate neutrality, reducing inequalities and transitioning to regenerative economic models.
- Horizontal strategies – the first sustainable development strategy was introduced in 2001, followed by several reflection papers in the following years. Key strategies are the Biodiversity strategy and the farm-to-fork strategy, which is at the centre of the Green Pact.
- International environmental cooperation- the EU is a key partner in different agreements associated with a large number of environmental challenges
- Environmental impact assessment and public participation- Projects and programmes are subject to environmental and strategic environmental assessments.
- Implementation, enforcement and monitoring- there are a number of directives, regulations and decisions on the topic. In 1990, the e European

Environment Agency published State of Environment Reports. In 2001, the EU adopted non-binding minimum standards for environmental inspections.

TEST

Questions	Correct answer*
1. When did Eurobarometer start to publish special public opinion surveys on the attitudes of European citizens towards the environment? a) 2008 b) 2007 c) 2011 d) 2017	
2. When did increasing skepticism related to environmental issues and protection occur? a) The beginning of 21 century b) 2010 c) 1990-1995 d) At the beginning of 90s	
3. Which Treaty included the environment as a policy area? a) The Treaty of Amsterdam (1999) b) 1987 Single European Act c) The Treaty of Maastricht (1993) d) Treaty of Lisbon (2007)	
4. When did the first Environmental Action Programme start? a) 1967 b) 1973 c) 1982 d) 1999	
5. The 8th Environment Action Programme presents the European environmental policy until: a) 2025 b) 2030 c) 2050 d) 2040	
6. Which of the following IS NOT part of the general principles of the EU's environmental policy? a) Principle of precaution b) Principle of prevention c) Polluter pays' principle d) Principle of recycling	
7. When the first surveys of public opinion on environmental issues start?	

a) The 70s of the 20th century b) The 80s of the 20th century c) In the beginning of the 21th century d) The 30s of the 20th century	
8. When did the EU environmental policy development start? a) 1980 b) 1990 c) 1985 d) 1972	
9. Based on the latest survey by Eurobarometer, what percentage of people think protecting the environment is important for them personally? a) 35% b) 85% c) 94% d) 73%	
10. Which of the following is NOT a priority objective of the 8th Environment Action programme? a) 2023 reduction targets b) Climate change adaptation c) Zero-pollution ambition d) Biodiversity and natural capital	
*Correct answers: 1B, 2A, 3C, 4B, 5B, 6D, 7B, 8D, 9C, 10A	

ADDITIONAL MATERIALS

1.	Urban, Jan, and Florian G. Kaiser. 2020 "Environmental attitude in the 28 member states of the European union: cross-cultural comparisons grounded in incommensurable measurement instruments." https://osf.io/preprints/psyarxiv/rj7yb	Paper related to the Environmental attitude in the 28 member states of the European Union
2.	Capstick, Stuart; Whitmarsh, Lorraine; Poortinga, Wouter; Pidgeon, Nick; Upham, Paul (2015). "International trends in public perceptions of climate change over the past quarter century". WIREs Climate Change. 6 (1): 35–61 https://wires.onlinelibrary.wiley.com/doi/full/10.1002/wcc.321	Public perceptions of climate change
3.	Kaiser, F.G., Ranney, M., Hartig, T. and Bowler, P.A., 1999. Ecological behavior, environmental attitude, and feelings of responsibility for the environment.	Ecological behavior, environmental attitudes in the EU

European psychologist, 4(2), p.59. https://sonar.ch/global/documents/291664

4.	https://europa.eu/eurobarometer/surveys/detail/3173	Attitudes of Europeans towards the Environment
5.	https://europa.eu/eurobarometer/surveys/detail/2672	Fairness perceptions of the green transition
6.	Selin, H., & VanDeveer, S. D. (2015). EU Environmental Policy Making and Implementation: changing processes and mixed outcomes.	EU Environmental Policy
7.	http://aei.pitt.edu/79664/	Environment action programme to 2030
8.	https://environment.ec.europa.eu/strategy/environment-action-programme-2030_en#:~:text=The%208th%20EAP%20entered,conditions%20needed%20to%20achieve%20these.	The EU–Central Asia Platform on Environment and Water Cooperation
9.	Orlando, E., 2016. The evolution of EU policy and law in the environmental field: achievements and current challenges. In The EU, the US and global climate governance (pp. 61-80). Routledge. https://books.google.bg/books?hl=en&lr=&id=HuSXCwAAQBAJ&oi=fnd&pg=PA61&ots=L9nzn4biF4&sig=XUAOQxbB5pfMbuvD8w-yVQrlgnE&redir_esc=y#v=onepage&q&f=false	The evolution of EU policy and law
10.	https://climate.ec.europa.eu/citizens/citizen-support-climate-action_en	Eurobarometer survey by the European Commission on climate actions

REFERENCES

1. Capstick S, Whitmarsh L, Poortinga W, Pidgeon N, Upham P. International trends in public perceptions of climate change over the past quarter century. Wiley Interdisciplinary Reviews: Climate Change. 2015 Jan;6(1):35-61.

2. Dupont C, Moore B, Boasson EL, Gravey V, Jordan A, Kivimaa P, Kulovesi K, Kuzemko C, Oberthür S, Panchuk D, Rosamond J. Three decades of EU climate policy: Racing toward climate neutrality?. Wiley Interdisciplinary Reviews: Climate Change. 2024 Jan;15(1):e863.

3. European Commission, Directorate-General for Communication, Directorate-General for Environment, Attitudes of European citizens towards the environment – Report, Publications Office, 2019

4. European Commission, Directorate-General for Communication, Directorate-General for Environment, Attitudes of European citizens towards the environment – Report, Publications Office, 2024

5. European Commission, n.d. https://environment.ec.europa.eu/strategy/environment-action-programme-2030_en#related-topics (accessed on 2 January 2023).

6. European Commission, n.d. https://www.europarl.europa.eu/factsheets/en/sheet/71/environment-policy-general-principles-and-basic-framework (accessed on 2 January 2023).

GLOSSARY

Abbreviation	Description
EAP	Environment Action Programme
EU	European Union
SG	Sustainable development

TOPIC 2: New European Bauhaus-Building for Greener Lifestyles, Biodiversity and Ecosystem, Farm to Fork strategy

AUTHOR: Mariyana Shishkova, Agricultural University – Plovdiv, Bulgaria

STRUCTURE OF THE TOPIC 1:

1. Introduction (5 min)
2. Video presentation 1 (6 min)
3. Reading 1 (6 min)
4. Test (15 min)
5. Additional materials (30-40 min)
6. References
7. Glossary

INTRODUCTION

The topic covers important issues facing modern society such as pollution, climate change, biodiversity and ecosystem conservation, food security and others, as well as the policies of the European Union that aim to overcome the difficulties. The essence of the New European Bauhaus and policy frameworks/initiatives helping to raise

awareness and change attitudes in society are presented. Coherence of these policies and joint targeted action are essential to achieve the objectives set (EC, n.d.).

Two of the key strategies at the heart of the European Green Deal and directly related to agriculture are covered, including: the Farm to Fork strategy and the EU Biodiversity Strategy 2030. The latter are interlinked, and their implementation is expected to lead to overcoming the challenges in the food system by producing a sufficient amount of quality and healthy food and at the same time create conditions for the protection of biodiversity and habitats.

The current situation regarding the performance of the individual member countries in relation to the set goals and indicators is presented. The visualized data from the Eurostat database refer to the year 2020, as this is the last year for which there is information for all member states. The values of the indicators at the EU level reveal the need for quick and effective actions in order to achieve the objectives and the expected sustainable results. All this implies the inclusion of all stakeholders in these processes.

VIDEO PRESENTATION 1

Link: video presentation 1

READING 1:

The European Commission defines the New European Bauhaus as "an initiative that connects the European Green Deal to our everyday lives"[1] and promotes joint action to build a sustainable and inclusive future. This initiative uses integrated approaches to optimize the impact of policies and promote synergies in order to overcome the challenges facing society (European Commission, n.d.)[2].

There are a number of issues that are putting pressure on biodiversity and ecosystems. In a report of the European Environment Agency (2020), entitled State of nature in the EU[3], they are summarized as follows: (1) agriculture; (2) invasive species; (3) urbanization and leisure activities; (4) changes in water regimes; (5) illegal hunting; (6) climate change; (7) pollution and (8) forestry activities.

In this regard, the EU Biodiversity Strategy for 2030 was published on 20 May 2020. It is defined as "a comprehensive, ambitious and long-term plan to protect nature and reverse the degradation of ecosystems" (European Commission, n.d). The strategy aims to build sustainable societies by: (1) establishing protected areas; (2) restoring ecosystems; (3) reducing the use and risk of pesticides; (4) restoring the free flow of rivers; (5) increasing land under organic farming; (6) reversing the decline of pollinators; (7) creating landscape rich in biodiversity; (8) planting over 3 billion trees and others.

The next strategy that is directly related to these policy objectives is the Farm to Fork strategy. The latter is at the heart of the European Green Deal and is oriented towards sustainable food production by 2030, by means of: expanding the areas with organic agriculture to 25%; limiting the use of pesticides by 50%; a 50% drop in the sale of

antimicrobials in animal husbandry and aquaculture; preserving soil fertility and reducing the use of fertilizers by 20%.

In conclusion, it can be stated that the EU's green transition policies outline a new future for European citizens. They lead to a change of attitudes in society regarding environmental protection, consumption of healthy foods, implementation of initiatives in the field of bioeconomy, social inclusion and sustainable development.

[1] https://new-european-bauhaus.europa.eu/about/about-initiative_en

[2] https://new-european-bauhaus.europa.eu/policy-ecosystem_en

[3] https://www.eea.europa.eu/publications/state-of-nature-in-the-eu-2020

TEST

Questions	Correct answer*
1. What is the New European Bauhaus initiative?	The New European Bauhaus is an interdisciplinary initiative that connects the European Green Deal to our everyday lives.
2. What are the main challenges putting pressure on biodiversity and ecosystems?	(1) agriculture; (2) invasive species; (3) urbanization and leisure activities; (4) changes in water regimes; (5) illegal hunting; (6) climate change; (7) pollution and (8) forestry activities.
3. EU Biodiversity strategy for 2030 aims to build the resilience of societies by:	Creating protected areas for at least 30% of Europe's land and sea and restoring degraded ecosystems.
4. The European Green Deal includes actions in the following main directions:	Climate; Energy; Environment and oceans;

	Agriculture; Transport; Industry; Research and innovation; Finance and regional development; New European Bauhaus
5. What are the ten key objectives of the CAP and are they linked to the European Green Deal and the Farm to Fork Strategy?	1) to ensure a fair income for farmers; 2) to increase competitiveness; 3) to improve the position of farmers in the food chain; 4) climate change action; 5) environmental care; 6) to preserve landscapes and biodiversity; 7) to support generational renewal; 8) vibrant rural areas; 9) to protect food and health quality; 10) fostering knowledge and innovation. Policies are closely related. The Common Agricultural Policy is the basis for achieving the objectives of the European Green

Deal in the field of agriculture.

6. The set goals for reducing the use of pesticides by 2030 are? B. and C.
   A. reduce by 20% the use and risk of chemical pesticides
   B. reduce by 50% the use of more hazardous pesticides
   C. reduce by 50% the use and risk of chemical pesticides
   D. reduce by 25% the use of more hazardous pesticides
7. Which of the following statements are related to the Farm to Fork Strategy? C. and D.
   A. reduce fertilizer use by at least 50% by 2030
   B. reduce by 50% the sales of antimicrobials for farmed animals and aquaculture by 2050
   C. increase farmland under organic farming to 25% by 2030
   D. reduce fertilizer use by at least 20% by 2030
8. Which are the Member States with the highest relative share of utilized agricultural area under organic farming in 2020? B.
   A. Malta, Spain and Bulgaria
   B. Austria, Estonia and Sweden
   C. Ireland, Bulgaria and Poland
   D. Austria, Estonia and Portugal
9. When was the 2030 Biodiversity Strategy published? A.
   A. 20 May 2020
   B. 21 November 2023
   C. 5 July 2023
   D. 22 February 2019
10. When was the European Green Deal presented? D.
   A. 20 May 2020
   B. 22 February 2019
   C. 28 May 2024
   D. 11 December 2019

ADDITIONAL MATERIALS

1.	https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en	The European Green Deal - targets, key areas of work, timeline
2.	https://new-european-bauhaus.europa.eu/about/about-initiative_en	New European Bauhaus - definition and development of the initiative
3.	https://new-european-bauhaus.europa.eu/policy-ecosystem_en	New European Bauhaus – relevant

		policy frameworks and initiatives
4.	https://www.eea.europa.eu/publications/state-of-nature-in-the-eu-2020	State of nature
5.	https://www.eea.europa.eu/publications/state-of-nature-in-the-eu-2020	EEA Report No 10/2020 State of nature in the EUResults from reporting under the nature directives 2013-2018
6.	https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030_en	Biodiversity strategy for 2030: objectives, actions, Implementation, timeline and additional links to policy areas, documents and others.
7.	https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en	Farm to Fork Strategy – about the strategy, its objectives and many additional links.
8.	https://ec.europa.eu/commission/presscorner/detail/en/fs_20_908	Factsheet: From farm to fork: Our food, our health, our planet, our future
9.	https://ec.europa.eu/eurostat/web/sdi/database	Sustainable Development Goals – Eurostat Database
10.	https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-2023-27_en	The common agricultural policy: 2023-27

REFERENCES

1. EOSTA, 2022. What does the EU Green Deal mean for the fruit and vegetable sector? Available online: https://newsroom.eosta.com/en/what-does-the-eu-green-deal-mean-for-the-fruit-and-vegetable-sector/ (accessed on 5 May 2024).
2. Euractive, 2024. Biodiversity. Available online: https://www.euractiv.com/ (accessed on 3 June 2024).
3. European Commission, n.d. Biodiversity strategy for 2030. Available online: https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030_en (accessed on 3 June 2024).
4. European Commission, n.d. Farm to Fork strategy for a fair, healthy and environmentally-friendly food system. Available online: https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en (accessed on 3 June 2024).
5. European Commission, n.d. New European Bauhaus. Policy ecosystem. Available online: https://new-european-bauhaus.europa.eu/policy-ecosystem_en#ref-5-education-and-skills (accessed on 3 June 2024).
6. European Commission, n.d. New European Bauhaus. Policy ecosystem. Available online: https://new-european-bauhaus.europa.eu/policy-ecosystem_en#ref-5-education-and-skills (accessed on 3 June 2024).
7. European Environment Agency, 2020. EEA Report No 10/2020. State of nature in the EU Results from reporting under the nature directives 2013-2018. ISSN 1725-917. Available online: https://www.eea.europa.eu/publications/state-of-nature-in-the-eu-2020 (accessed on 5 May 2024).
8. Eurostat, n.d. SUSTAINABLE DEVELOPMENT GOALS 2. Zero hunger. Available online: https://ec.europa.eu/eurostat/web/sdi/database/zero-hunger (accessed on 4 June 2024).
9. Zare, F.; Boye, J.I.; Orsat, V.; Champagne, C.; Simpson, B.K. Microbial, physical and sensory properties of yogurt supplemented with lentil flour. *Food Res. I*. 2011, *44,* 2482–2488, doi.org/10.1016/j.foodres.2011.01.002.
10. Stone H.; Sidel J. Sensory Evaluation Practices 3rd ed.; Academic Press, California, USA, 2004. Available online: https://www.elsevier.com/books/sensory-evaluation-practices/stone/978-0-12-672690-9 (accessed on 25 October 2023).
11. Regulation (EU) No 1151/2012 of The European Parliament and of the Council of 21 November 2012 on quality schemes for agricultural products and foodstuffs, https://eur-lex.europa.eu/legal-

content/EN/TXT/?uri=CELEX%3A32012R1151 (accessed on 19 December 2023).

12. ISO 8586:2012. Sensory analysis — General guidelines for the selection, training and monitoring of selected assessors and expert sensory assessors. Available online: https://www.iso.org/standard/45352.html (accessed on 25 October 2023).
13. Internet, 2023a. Retail Industry Challenges and the Tech Solutions to Conquer Them. Available online: https://www.xaasjournal.com/2020-retail-industry-challenges-andthe-tech-solutions-to-conquer-them/>. (accessed on 2 January 2023).

GLOSSARY

Abbreviation	Description
EC	European Commission
EU	European Union
EEA	European Environment Agency

TOPIC 3: Green Transformation of the U-GREEN Consortium: Administrative, Research or Student Initiatives

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STRUCTURE OF THE TOPIC 3:

1. Introduction (5 min)
2. Video presentation 1 (9 min)
3. Reading 1 (7 min)
4. Video presentation 2 (26 min)
5. Reading 2 (7 min)
6. Test (5 - 10 min)
7. Additional materials (20-30 min)
8. References
9. Glossary

INTRODUCTION

This topic explores the U-GREEN Consortium's initiatives to advance sustainability, from green offices to administrative plans. These initiatives have set the foundations of the Consortium's green transformation, providing HEIs with ideas and different options for transforming their institutions into true agents of change towards sustainability for the planet and society as a whole.

In the first part of Topic 3, the reader will know what the Consortium has achieved among Administrative, Researches and different Students initiatives to reach a greener transformation of HEIs and the whole group, leaving the examples of initiatives leaded by the University of Almeria for the second text.

Thus, in the second part we are going to study the initiatives carried out at the University of Almería (UAL) in recent years to initiate the green transformation of our university and orient ourselves towards the proposals put forward by the U-GREEN consortium. Obviously, with this module we do not intend to affirm that the University of Almeria is the model to be followed by HEIs concerned in this area, but simply to explain the initiatives carried out in case they could other ideas to other institutions.

VIDEO PRESENTATION 1

Link: video presentation 1

READING 1:

This Text 1 is composed of four sections. The first section presents some examples of Green Offices, Green Labs and Sustainability Teams that have been created by the partners. In the second section, the initiatives and actions carried out to strengthen the different Campuses, such as Living Lab, are described, giving options to be implemented by other HEIs. The third section presents some Implementation Plans carried out by the

partner institutions at the administrative level. The final section presents other green initiatives carried out by Administrations, Researchers and Students.

Green Offices, Green Labs and Sustainability Teams

Green Offices

SGGW - SGGW Group for the Implementation of the UN 2030 Agenda.

UNIMORE - Has an office with a sustainability manager.

AUI - During its participation in U-GREEN has obtained the certificate for the last step of the Green Steps Program, which involves the management in the process to ensure the money, time and hours needed for the ongoing environmental work. The program is developed for government agencies in Iceland with the overall objective of promoting environmental awareness among employees, as well as decreasing the environmental impacts of daily operations in the public sector.

SUPBIOTECH - The organization has a manager in charge of Sustainable Development and Social Responsibility (SD&SR).

Green Labs

AU PLOVDIV - Plovdiv Agricultural University built and opened in 2019 a new teaching center with eco-friendly laboratories. The new centre is sustainable and eco-efficient.

AUI: The organization has a comprehensive protocol for waste management, including the safe disposal of hazardous waste generated in the laboratories and the promotion of recycling practices. Although it does not have specific certifications for each laboratory, it does hold general certifications that endorse its commitment to responsible environmental management in all its operations.

SUPBIOTECH - Has a laboratory that implements green strategies as part of its commitment to environmental protection.

Sustainability Teams

HEPL - The creation of ecoteams represents an ongoing commitment to implementing sustainable actions on each campus, adapting to changing needs and challenges.

AU PLOVDIV - As of April 2024, the new governing body of Plovdiv Agricultural University has taken an important step towards sustainability by creating a dedicated sustainability team. This team will be composed of representatives from almost all structural units of the university, ensuring broad representation and collaboration in sustainability efforts. The team will actively work to promote the university's green transition by implementing innovative initiatives and measuring their impact.

UNIMORE Sustainability officers from each department form a strong and cohesive sustainability group that promotes sustainable practices at all levels.

SUPBIOTECH - An SD&SR committee with students and staff

Reinforcing actions. The Campus as a Living Lab

HEPL – Connected urban beehives, which means re-anchoring nature in the heart of cities and allowing their inhabitants to reconnect with it. These hives are equipped with sensors, thermometers, cameras – they are connected – to get the best out of them, thanks to the means of the modern world. They have also insect hotels, roof gardens and wild meadows, everything for their full compromise to play a role in perpetuating a diversity of foraging fauna and reduce the ecological footprint of its territory. The High School is actively involved in Fair-trade initiatives and label: its Campus 2000 is in the process of obtaining the "Fair Trade Schools and Universities" label. It is also de host of a Food Transition Festival, aimed to raise awareness among students about the food transition. During the festival, participants can attend to Master classes of different nature, being able to participate in trainings such as environmental footprint calculation, Climate trainings and digital frescoes and training in other sustainable development tools.

AU PLOVDIV - Plovdiv Agricultural University raises awareness and public engagement through various campaigns and initiatives: Bioeconomy Week, International Earth Day, World Water Day, The Charm of Plants, Student Diversity Day, Together for Clean Air, etc. The university campus has 24 ha and the experimental fields 177 ha. The green areas become natural classrooms, where students and teachers interact with the environment in a hands-on learning context. Their eco-farm, founded in 1994, is the first certified organic farm in Bulgaria.

SGGW - Bioeconomy Week, SGGW Days, May at SGGW Arboretum in Rogów. They have also flower Meadows to preserve some species and a new experimental structural soil parking surface

SUPBIOTECH - Social and Environmental Actions

Implementation plans

HEPL - The school is committed to sustainable development and is taking concrete steps to achieve this goal. In this regard, a comprehensive inventory of its facilities is being drawn up, assessing its performance in terms of sustainability. One center has taken an important step by measuring its carbon footprint, marking the beginning of a path towards reducing its environmental impact. The school's commitment to sustainability is clearly reflected in its strategic plan, which establishes the objective of supporting the implementation of sustainable actions at all its sites (project 1.3.3).

AU PLOVDIV - Plovdiv Agricultural University, in conjunction with its sustainability team, is in the process of defining the strategy and operational plans that will guide its path towards sustainable development.

SGGW - In 2023, in a proactive effort to reduce our environmental impact, we began measuring our carbon footprint per employee. This report, to be published in July, will provide a detailed assessment of our performance in this area.

UNIMORE - the university renews its commitment to sustainability through a comprehensive Energy Plan every six years.

AUI - The university has developed a robust sustainability action plan, led by the environmental manager. This plan is based on our climate policy and environmental policy.

SUPBIOTECH - Annual preparation of an action plan by the person in charge.

Other green initiatives implemented by Administrations, Researchers and Students

HEPL - Research and Sustainability Group, fair trade purchases, sustainable purchases (sustainable laces...) and purchase of solidarity baskets for students. All research projects (Manapump, Puma, Miraccle, Manabees, Antilope etc...) include sustainability issues and they collect solidarity petitions written by students.

AU PLOVDIV - Paperless administration: the university implemented a system for digital documentation. They organise Conferences and courses in the field of sustainable development, green transition, bioeconomy.... Regarding students, they have the AUP Botanical Garden Campaign. AUP students participate in the "BIO-BASED INNOVATION STUDENT CHALLENGE - EUROPE". Additionally, Agrarian University students participated in nature academy initiative

SGGW - New electric vehicle charging station (overall: 5 EVs on campus). New fourteen grid-connected photovoltaic systems totaling 600 kW. New EURO 5 engine cars. E-waste recycling system (we collect e-waste and sell it to an external company). Paper recycling system (we collect waste paper and sell it to an external company). New liquid soap dispensers (TORK system, which reduces the amount of detergent). They host lectures and courses in the field of sustainable development, ecology, biodiversity, environmental law. Related to students, they have a Pedagogy student garden (work in progress) and a Student food sharing project (work in progress).

UNIMORE - Plastic free/ promotion of slow mobility/ increase of green areas. Several research projects are developed on sustainability in various aspects: environmental, social, economic. Students are involved in clean-up initiatives, seminars, workshops...

AUI - We submit our green accounting to the Environment Agency each year, where we track and report our emissions as part of our participation in the Green Steps Program. Paperless exams, paperless administration. Library and archive services are moving largely to the Internet. Online signing of contracts has been established to reduce printing. Always printing two-sided and in shades of gray. We use electric cars mainly for travel between campuses, etc. By participating in the Green Steps Program, all employees participate. Researchers, for example, rarely distribute printed materials to students, but instead use online software such as Canvas to share material, etc. Students participates in recycling.

SUPBIOTECH - Staff training and awareness-raising. GHG assessment. Sustainable food and student garden.

INCOMA - Its activity is mainly related to researchers with the participation in European projects related to the subject. Some ongoing projects related to supporting sustainability, ecological transition, etc. are:

- CIRCULAR - Circular Economy Living Labs Supporting Social Innovation in Southeast Asia
- GREENLAB - GREEN LABOR MARKET THROUGH PVT AND EMPLOYER ASSOCIATIONS
- GREEN TASTE - Consumption and Digital Education innovating school curricula and sustainable habits.
- IMPAR (eco-inclusive and environmentally sustainable entrepreneurship)
- INVEST - Competencies for Sustainable Lifestyles
- SHERLOCK - Supporting the energy transition of the housing stock
- POLIS - New Sustainability Paradigms for Inclusive and Smart Latin American Cities
- CON - Boosting women's entrepreneurship education in tourism and hospitality in sub-Saharan Africa (Green Transition)

Some other projects that have already finished are:

- CREOPSS+ - Solidarity economy and sustainable development entrepreneur supporting a European dimension
- ENACT - Energy Auditors Competencies, Training and Profiles

VIDEO PRESENTATION 2

Link: video presentation 2

READING 2

In this part, the reader will know what the University of Almeria have done on sustainability, what we managed to do within the universities, our first results, our implementations and plans. In short, what we managed to do on the example of all universities. This second part is structured as follows: In the first section, the body that is responsible for sustainability at the University of Almería is described. Thus, the legal basis of its competences and its alignment within the University's Strategic Plan is explained. Its structure and operation are also analyzed. The second section describes the initiatives carried out in the last four years, classified by areas according to the organic classification followed by the University of Almería and according to the U-GREEN proposal. In the third section, we present some other initiatives done by other bodies of the University. Last, the final section presents the organisation and responsabilities of similar bodies in other Spanish universities.

Vicerrectorado de Deportes, Sostenibilidad y Universidad Saludable de la Universidad de Almería

To ensure Spain's contribution to the achievement of the UN SDGs, the Spanish Government approved the Action Plan for the implementation of the 2030 Agenda of the Government of Spain which, among others, states:

- Contribution to the 17 Goals: "... universities make their resources, skills, as well as their space of influence available to the 2030 Agenda at the service of sustainable global development..."
- The University and the companies key actors: "... The University is a key actor in promoting sustainable human development. Their responsibility in the field of education, developing critical thinking and incorporating the principles and values of sustainable, inclusive and egalitarian development, is unquestionable".

In the University of Almeria, the Office of the Vice-Rector for Sports, Sustainability and Healthy University is the body responsible for reducing the environmental impact of our university, promoting sustainable development, planning and organising activities and managing sports facilities, guaranteeing occupational health and safety on campus, providing psychological help to members of the university community and carrying out health actions. It is a wide range of responsibilities, in which in recent years we have managed to achieve practically all the objectives set and approved by the Governing Board of the University.

The University of Almeria has been promoting the sustainability of the institution for years. The commitment to it of the current government team was reflected since 2019 in the creation of a specific Vice-Rectorate (Vice-Rectorate for Sports, Sustainability and Healthy University), with a Directorate of Sustainability Secretariat, to which the competencies of sports, sustainability and healthy university were assigned, in addition to others such as psychological care, occupational risks and safety. Previously, sustainability was integrated into Campus and Infrastructures.

In this sense, sustainability is integrated into the Governing Programme of the Rector of the UAL, specifically in Area 9: "A Sustainable and Healthy Campus" and Goal 66: Transform our campus into a friendly, sustainable and safe workplace.

The Governing Council of the UAL also created a specific delegate Commission called first "Environmental Sustainability Commission" and, currently, "SDG Commission".

Another element that accounts for the importance of sustainability for our university is that it was taken into account in the Statutes of the UAL. These statutes establish that "The assumption of the challenge of minimizing its negative environmental impact and the commitment to promote the priority use of ecological and recyclable materials and the rational use of energy" (art. 6, section d).

On the other hand, sustainability is also included in the University's Strategic Plan. The strategies corresponding to objective 4 "Improve the contribution of the University of

Almería to the sustainable development goals" of strategic axis 4 "Impact on the environment" of the UAL Strategic Plan (Access the UAL Strategic Plan), which are listed below, are the following:

- "Adapt the UAL sustainability plan to the SDGs, so as to encourage the awareness and sensitivity of the university community.
- Facilitate the inclusion of sustainability in the training of UAL students, through new actions and incentives.
- To promote the role of the UAL as a reference institution in helping refugees and university asylum seekers.
- To promote the development of research projects and knowledge transfer actions in the field of sustainable development of the European 2030 agenda."

On 25 March 2021, a tool was submitted to the Governing Council and unanimously approved, which will lead the UAL to comply with the 2030 Agenda of the UN Sustainable Development Goals (SDGs). It is the "Strategic Document: Commitment of the University Community of the UAL to Environmental Sustainability".

Last, the political commitments (see political commitments) approved by the Governing Council on 24 July 2017, establish the commitment to contribute to the advancement of the sustainable development of society through teaching, research and innovation.

The Office of the Vice-Rector for Sustainability is structured around the Vice-Rector, and consists of three secretarial directorates (Sports, Sustainability and Healthy Campus), a psychological care unit and a manager of the security team.

The decisions and proposals that the Office of the Vice-Rector makes to the Governing Council of the University are previously approved by the Sustainability-SDG Committee. The SDG Sustainability Commission (CS-SDGs) guarantees the participation and involvement of the university community in this area; and its purpose is to draw up the ENVIRONMENTAL SUSTAINABILITY PLAN, the ANNUAL ACTION PLANS in terms of sustainability of the UAL, as well as all those functions assigned to it by the Governing Council of the UAL. She is also responsible for the TRAINING, SENSITIZATION AND AWARENESS in this matter of all students, teachers and management staff of the UAL.

All sectors of the University and all the heads of the governing bodies that have competence in this area and that can contribute to improving this essential area today are represented in this SDG Sustainability Commission. Specifically, in addition to the representatives of the Students, the PDI and the PAS of the UAL, there are also: The Rector, the Manager, the Vice-Rector for Sports, Sustainability and Healthy University, the Vice-Rector for Academic Planning, the Vice-Rector for Research and Innovation and the General Director of Infrastructures.

5 Working Groups have been created that will be the first line of action of the UAL in Sustainability. Each of the groups has the following tasks:

- Environmental Sustainability Policy Working Group: In charge of carrying out the Environmental Sustainability Plan of the UAL.
- Involvement and Training Working Group: It covers all information, training and awareness-raising activities aimed at making the university community aware of the importance of having a respectful behaviour with the environment.
- Teaching Working Group: Referring to the implementation of sustainability training in the university teaching environment (in regulated and non-regulated degrees).
- Research Working Group: Aimed at promoting research activity to advance the achievements of the sustainable development of society.
- Environmental Management Working Group: Responsible for sustainable urban planning and respect for biodiversity; energy and water savings; sustainable mobility; domestic and hazardous waste management; buy green; and evaluation of the environmental impact of university activities.

In the last nine years, the Office of the Vice-Rector has designed and implemented annual sustainability action plans that have undoubtedly contributed to increasing the sustainability of our university.

These annual plans, approved by the Governing Council, can be consulted on the UAL website, at the link

The proof that the UAL is more sustainable in recent years is that our University has entered for the first time in the THE IMPACT ranking, the international benchmark ranking in sustainability, and is also positioned in 12th place in the SDG of 'Climate Action'. On the other hand, it is placed directly in the first quartile of 1,117 universities analysed around the world for the set of the 17 Sustainable Development Goals within the framework of the United Nations 2030 agenda.

In the same vein, it should be noted that the University of Almería has obtained a rating of 7.2 out of 10 in the evaluation of university sustainability in Spain, carried out through a tool developed by the CRUE Universities. This is an important positioning, since the average score of the 38 universities evaluated has been 5.2.

Another ranking, this time from Forbes, brings the UAL closer to the group of the top ten Spanish universities, highlighting the sustainability work of the UAL, which takes on the challenge of reducing its negative environmental impact and acquires the commitment to contribute to the advancement of the sustainable development of society through teaching, research and innovation.

Initiatives carried out in the last four years

The Green initiatitives performed by the University of Almeria are designed, anualmente, through the UAL's Sustainability Action Plans. These Plans are prepared by the Directorate of the Sustainability Secretariat and reviewed by the Vice-Rector. They are then studied by the Sustainability-SDG Commission, which amends them and makes contributions, and then raises them to the Governing Council of the University

of Almeria, which finally approves them in whole or in part, or requests their modification.

The annual action plans establish the actions to be carried out, classifying them, as recommended by the CRUE (Conference of Rectors of Spanish Universities, which represents all public and private universities in Spain) by Environmental Areas. These areas are as follows: Teaching, Research, Urbanisation and biodiversity, Energy, Water, Sustainable Mobility, Waste, Sustainable Purchasing and Environmental Impact Assessment.

Therefore, sustainability actions are linked, on the one hand, to the environmental areas proposed by the CRUE and, on the other hand, and in parallel, to the Sustainable Development Goals (SDGs) proposed by the 2030 Agenda. In addition, the environmental sustainability commission of the UAL has changed its name to the SDG Commission and has expanded its responsibilities so that it not only addresses environmental sustainability, but also economic and social sustainability. In this sense, its first task has been to design the Strategic Document entitled "Commitment of the University Community of the UAL to Environmental Sustainability", already approved by the University Community. Therefore, the UAL assumes the 2030 Agenda and tries to comply with its commitment to sustainability through, among other bodies, the Office of the Vice-Rector for Sports, Sustainability and Healthy University.

Sustainability, in its three legs (environmental, economic and social) is a cross-cutting issue that requires all economic, political and social agents. Therefore, at the university level, it permeates all the activities carried out by the institution, from teaching to research, transfer and, of course, internal and external management. Therefore, it is essential to align all the university's teaching, research and management staff with the sustainability strategy, as well as their day-to-day action.

Sustainability initiatives in Teaching

The document prepared by the CRUE for the self-diagnosis of the management of Environmental Sustainability in the University refers to the field of teaching, in which it is intended to evaluate the degree of implementation of Sustainability training in the university teaching environment. In this way, the CRUE approved Guidelines for the introduction of sustainability in the curriculum (CRUE, 2012). This document mentions the aspects that must be considered to implement Sustainability-SDG content in the curricula. It also indicates that it is unquestionable that higher education is a key tool to achieve Sustainable Human Development.

The University of Almería incorporates training in transversal Sustainability-SDG competences in the Bachelor's and Master's degrees. These competencies are aimed above all at the acquisition of good practices in future work and professional performance, something that can ensure that graduates, when exercising their professional activity, respect people in situations of need (equality, disability, health prevention, etc.) and the environment.

With this improvement in teaching, the University of Almería guarantees that its student-future professionals acquire critical thinking, incorporating the principles and values of sustainable, inclusive and egalitarian development. As we have already said, the main objective is that, with the development of their professional activity, graduates of the University of Almeria contribute to ending poverty, protecting the planet and improving the lives of people around the world. All this represents an important contribution by the UAL to the achievement of each and every one of the SDGs of the UN 2030 Agenda.

In addition, the University of Almería has approved a Master Programme for the Integration of Sustainability and the SDGs in Bachelor's and Master's Degrees (ODS-Teaching Programme). The objective of this Master Programme is to develop, in the teaching of UAL Bachelor's and Master's Degrees (including the Master's Degrees of own education), training for the achievement of basic, general, transversal and specific competences related to Sustainability-SDGs.

On the other hand, the implementation of this Master Programme, in addition to responding to the recommendations of the CRUE, can make an important contribution by the UAL to the achievement of each and every one of the SDGs of the UN 2030 Agenda.

It also entails an improvement in the implementation of the UAL's commitments in terms of Sustainability-SDGs derived from:

- The Statutes
- The Code of Ethics
- The Strategic Plan
- Political commitments in environmental sustainability

Finally, with this advance in the Teaching of Sustainability-SDGs, the University of Almería guarantees that its student-future professionals acquire critical thinking, incorporating the principles and values of sustainable, inclusive and egalitarian development. The main objective is that, with the development of their professional activity, UAL graduates contribute to ending poverty, protecting the planet and improving the lives of people around the world. The University of Almeria has incorporated these issues of the collective agenda into the training programs.

Sustainable initiatives in Research

Generating and transmitting knowledge that facilitates the fulfillment of the SDG goals is an important contribution to their achievement. UAL carries out research related to the SDGs in practically all areas of knowledge at the university.

Sustainable initiatives focused on the society

With the execution of Annual Sustainability Action Plans (or similar programmes) the University of Almeria is becoming a benchmark in this field.

World Climate Day, which is commemorated on March 26 each year, arises with the purpose of raising awareness among the population about the importance of human actions and activities in climate variation.

In each of the five Annual Environmental Sustainability Action Plans implemented to date by the University of Almeria, an area of Awareness and Awareness is contemplated with the actions carried out (see Action Plans).

On the other hand, as mentioned above, training in transversal Sustainability-SDG skills in the Bachelor's and Master's degrees of the UAL, as well as the generation and transmission of knowledge in this area, also involve raising awareness among the population of the importance of the consequences of climate change.

In the last two years, actions have been carried out, among others, such as the following:

- Construction of an internal bike lane on the university campus
- Moorish garden
- Mathematics Garden
- Water Garden Reinforcement
- Organization of training courses for teaching and research staff related to sustainability.
- Interpretation posters of the new gardens
- UAL Urban Biodiversity Conference
- Ambioblitz UAL
- Owl hacking
- Manual of good practices in the use of energy
- Change of lighting to LED in some UAL buildings
- Implementation of a system to detect water leakage in classrooms
- Manual of good practices for the use of water
- Study to improve the network of water tanks at the UAL
- Pre-agreements of agreements with Cajamar and Torrecárdenas Shopping Center to carry out a campaign to promote the use of bicycles at the UAL
- Manual of good practices on waste recycling
- Improvement of the containers for packaging and paper waste in the campus urbanization

- Tender for the collection, transport, storage and treatment of waste generated in UAL laboratories
- Incorporation of environmental criteria in UAL purchases and contracts
- Calculation and recording of the carbon footprint
- Organization of the CRUE-Sustainability Conference
- Preparation of a draft Manual of Good Environmental Practices for the University Library
- Participation in the Evaluation of the University Sustainability Policies of the CRUE
- Integration of the UAL as a member of the Executive Committee of the CRUE-Sustainability Sectoral Commission
- Campaign to promote and raise awareness for the use of bicycles
- Organization of the ECOCAMPUS and RECAPACICLA Actions
- Preparation of ECORAP video clips
- Preparation of environmental awareness videos of the UAL EcoBand
- Radio Ecocampus, weekly program
- Exhibition on climate change and developing countries
- Guide to Good Practices in Environmental Sustainability in the organization of UAL events
- Inclusion in the Guide for the reception of new students a flyer of good environmental practices on the University Campus
- European Mobility Week "EcoUALizate" Social Media Campaign (U-MOB LIFE)
- Preparation of small awareness and sensitization videos through EcoTips.
- Replacement of posters in Punta Entinas.
- Completion of bachelor's and master's degree final projects and doctoral theses related to Environmental Sustainability
- Continuation of the bachelor's and master's degrees related to Environmental Sustainability
- Promote the creation of teaching innovation groups where all or part of the content is related to environmental sustainability.
- Dissemination so that research groups can publish their work and apply for grants.
- Installation of lockers for electric scooters, with battery recharging.
- Bike lane inside the university campus and connection with the municipal bike lane
- Financing agreement for the acquisition of non-polluting vehicles (electric cars, bicycles, scooters, etc.) with CAJAMAR

- Agreement for the dissemination of sustainability with the Torrecárdenas shopping centre.

Iniciatives from other bodies of the University

UAL Library

The mission of the Nicolás Salmerón University Library of the UAL is to facilitate access to and dissemination of information resources and to collaborate in the processes of knowledge creation, in order to contribute to the achievement of the objectives of the University of Almeria. The Library includes all the bibliographic and documentary collections of the University, whatever their medium and regardless of their location, their origin, the means used to acquire them and the budgetary concept applied to them. It provides services such as:

- The loan of library collections.
- Information and advice.
- User training.

At the cooperative level, it stands out for its membership of various organizations:

- The Consortium of University Libraries of Andalusia (CBUA).
- The Spanish Network of University and Scientific Libraries (REBIUN).
- The Spanish Group of Innopac Users (GEUIN).

The Nicolás Salmerón University Library is a body that carries out an essential activity for the functioning of the UAL and also attends, within the scope of its competences, to the needs of all students and teaching staff of the university. For this reason, the library with its management and facilities has the opportunity to carry out environmental awareness and sensitization work among the University Community, in addition to minimizing its negative environmental impact, and enhancing its positive environmental impact. All this, through the execution of its own actions such as the reduction or elimination of the use of paper, the availability of bibliographic collections in digital format, etc.

REBIUN in its strategic line 1 "Improving organisation, communication and leadership" includes five general objectives. General Objective 5 of this strategy promotes the collaboration of University Libraries with the objectives of the University, including the institution's commitment to Environmental Sustainability.

In this sense, the document "GUIDELINES FOR THE TRAINING OF USERS IN LIBRARY SUSTAINABILITY" is framed, which sets out some basic guidelines on how to guide the training of users in sustainability, which they take to University Libraries.

The Good Environmental Practices of the UAL Library are framed in the scope and objective indicated below of the Government Program of the current Rector, Prof. Dr. D. Carmelo Rodríguez Torreblanca.

Area 9. "A Sustainable and Healthy Campus"

- Goal 66. Transform our campus into a friendly, sustainable and safe workplace.

These Good Environmental Practices are part of the strategies listed below corresponding to objective 4 "Improve the commitment of the University Community to sustainability and social responsibility", of strategic line 4 "Interaction with society":

- To establish actions to promote the social responsibility of the university community and its social and sustainable contribution to society.
- To promote a global environmental culture and design a sustainability policy on campus that includes actions to improve energy consumption and reduce pollutants and waste from the university community.
- Establish an accessibility and sustainable mobility plan on campus. Develop a plan to facilitate access and stay for people with functional diversity, so that any type of obstacle and barrier that hinders a normalised stay at the university is eliminated.

The specific objectives of the Library, classified by Environmental Areas, are the following:

- Environmental Policy Scope: Involve the governing bodies and management of the Nicolas Salmerón University Library with Environmental Sustainability.
- Area of Environmental Involvement and Awareness: Involve and raise awareness among the Library's workers and users of the importance of having good practices in environmental matters.
- Training Area: The document "GUIDELINES FOR THE TRAINING OF USERS IN LIBRARY SUSTAINABILITY" of REBIUN, aims to facilitate the integration of content related to library sustainability in the user training activities carried out by university libraries.

According to this document, the general objective in this area of training is to raise awareness among users of the negative impacts of sustainability due to the inappropriate or irresponsible use of libraries.

Likewise, the specific objectives of the training block can be summarised in four:

- Disseminate the triple dimension of sustainability.
- Explain some basic concepts of sustainability.
- Reporting on the negative sustainability impacts of libraries.
- Highlight the role of users in achieving a sustainable library.
    - Biodiversity and waste area: In general, promoting biodiversity and sustainable urbanism. Two examples would be: the minimization or elimination of the use of paper and facilitating the selective collection of waste in the Library. It also includes the promotion of responsible behavior.

- Energy area: Optimize energy consumption in the Nicolás Salmerón University Library, as well as promote the improvement of its facilities to achieve greater energy efficiency. It also includes the promotion of responsible behavior.
- Water area: Improve efficiency in terms of water consumption in the Nicolás Salmerón University Library, by optimising its facilities and efficiently correcting water leaks. It also includes the promotion of responsible behavior.
- Sustainable Mobility Area: Promote the use of sustainable transport.
- Green Procurement Area: Incorporate Environmental Sustainability criteria into the procurement of goods and services in which the Library is involved.

Examples of actions, by environmental areas, that could be carried out by the Nicolás Salmerón University Library of the UAL in terms of sustainability:

Scope of Environmental Sustainability Policy:

- Obtain the ISO 14001 "Environmental Management System (EMS)" certification for the library.
- Preparation of the Manual of Good Practices in Environmental Sustainability.
- Preparation of the annual programme of actions in the field of Environmental Sustainability.
- Preparation of the execution report of the annual programme of actions in the field of Environmental Sustainability.
- Highlight the Library's commitment to Environmental Sustainability, including reference to Environmental Sustainability in the Library's communication and management documents, whenever appropriate.

Area of Environmental Involvement and Awareness

- Disseminate as much as possible the general principles of S.A. of the UAL approved by C.G.
- Dissemination, on the screens of the library and through any other channel deemed appropriate, of the audiovisual and documentary material (Flyer) produced by the University on environmental values for the awareness and sensitization of users and staff of the library. For example, material intended for:
  - The promotion of the use of bicycles and electric scooters.
  - Raise awareness about the rational use of energy, correct switching on and off of:
    a) Air conditioning.
    b) Work room luminaires when exiting them.
    c) Computer equipment of the library.
  - Use of stairs instead of elevators.
  - Make rational use of water

- Eliminate or minimize the use of paper.
- Make correct use of waste containers.

Training Scope (Information extracted from the document "GUIDELINES FOR THE TRAINING OF USERS IN LIBRARY SUSTAINABILITY" by REBIUN)

Block 1: Training aimed at disseminating the triple dimension of sustainability:

- Environmental sustainability refers to the negative effects that human activity has on the planet in the form of global warming, depletion of natural resources and energy sources, pollution, desertification, deforestation, loss of biodiversity...
- Social sustainability, a concept based on the idea of social justice:
  - Equity or equal opportunities for all members of society, especially the most vulnerable.
  - Respect for social and cultural diversity.
  - The quality of life of all members of society.
  - The existence of processes, systems and structures that facilitate social relations within and outside the community.
  - The existence of democratic processes and open and transparent governance structures.
- Economic sustainability has to do with economic viability based on an efficient and responsible use of library resources.

Block 2: Explain some basic concepts of sustainability:

- Sustainable Development
- Greenhouse effect
- Carbon Footprint
- The three R's
- Budget Sustainability
- Rebound Effect

Block 3: Reporting the negative impacts of libraries on sustainability:

Block 4: Highlight the role of users in achieving a sustainable library:

- Sustainability of the service: Actions that may cause a significant deterioration of library services or that generate negative impacts on human health:
  - Paper consumption
  - Water consumption
  - Energy consumption
  - Use of the facilities

- Use of computers
- Internet browsing
- In press book vs. e-book

- Social Sustainability: Actions that violate the rights of other users (actual or potential) and of people in general.

Biodiversity and waste area

- In reference to eliminating or minimizing the use of paper, actions could be carried out that promote:
  - Bibliographic resources in digital format for teaching and research.
  - Digital Loan.
  - The loan of ebooks to consult bibliographic resources in digital format.
  - The use of recycled paper.
  - The reduction of the use of paper in administrative management.
  - The switch to paperless photocopiers (PDF copies, etc.).
  - Etc.

Energy Scope

- Possibility of improving the facilities as much as possible to optimize the use of energy:
- Place photovoltaic panels for the supply of energy in the library.
- Installation of timers in the luminaires of the work tables.
- Etc.

Water Area

- Improve the facilities as much as possible to optimize the use of water:
- Multi-year preventive maintenance of water and sewage installations.
- Etc.

Sustainable Mobility Area

- Install lockers to store electric scooters.
- Charging point for scooters and electric bicycles
- Etc.

Green Procurement Scope

- Review of the vending machine contract – it appears as a condition that all packaging is paper or biodegradable.

Scientific Collections Research Center (CECOUAL)

The Scientific Collections Research Centre of the University of Almeria, CECOUAL, began its journey in 2015. This centre was born with the intention of bringing together the existing collections in the province of Almeria, both from individuals and researchers from the UAL.

The main objectives of the Centre are research in bio and geodiversity, didactics, collection management and dissemination using scientific collections as the main axis. A collections centre is a place of work for both local and visiting scientists from other parts of the world, who have the possibility of consulting the collection of their interest, as well as depositing the specimens collected in their research and leaving them registered and available to the rest of the scientific community.

Aula Marina

The Aula Marina is an entity that seeks to develop informative and training activities related to the sea. Its creation was approved by the Extraordinary Governing Council, on July 24, 2017, based on an initiative carried out by the Center of International Excellence of the Sea (CEIMAR) of the University of Almeria.

The objective of the Aula Marina is to be a driving force for dissemination and training on related aspects of the marine environment of Almeria. Its purpose is not to compete with other private entities or groups but to try to be a uniting agent for all those initiatives that act in favor of the sea, the oceans and their people.

Andalusian Centre for Global Change - Hermelindo Castro

The Andalusian Centre for Global Change - Hermelindo Castro (ENGLOBA) is a research centre of the University of Almería whose objective is to obtain scientific evidence, tools and methodologies to support policies and management actions to guide the transition towards sustainability. Considering this framework, we focus our work on supporting climate change mitigation and adaptation strategies. Mitigation strategies seek to make the effects of climate change less severe by avoiding or reducing the emission of greenhouse gases (GHG) into the atmosphere. Adaptation can be understood as the process of adjusting to the current and future effects of climate change, as its objective is to anticipate the adverse effects of climate change and to take appropriate measures to prevent or minimize the damage they may cause, or to take advantage of the opportunities that may arise.

Objectives:

- Identify and characterize indicators for monitoring and evaluating the effects of global change on ecosystems and socio-ecosystems.
- To assess how much and how human well-being benefits from ecosystem functions and services, and the application of the knowledge generated in this area to the processes of social and business transition to sustainability.

- To provide knowledge for the management and conservation of biodiversity as a fundamental support for all the essential processes that make our planet a safe operational space for humanity.
- To produce multi, inter and trans-disciplinary knowledge to facilitate and promote decision-making towards sustainable development.

Centre for Research in Agri-Food Biotechnology (BITAL)

The Centre for Research in Agri-Food Biotechnology (BITAL), a centre of the University of Almeria, was created in 2009 in response to the growing need for research in the agri-food field and with the aim of integrating the advances of different scientific disciplines and thus providing solutions to the scientific challenges of the sector through innovative biotechnological approaches. Among BITAL's scientific objectives are the use of genomic and biotechnological tools that favor the obtaining of new plant varieties that are better adapted, with greater productivity and resistant to pests and diseases. Similarly, food quality and safety, the identification of new nutraceutical and bioactive compounds and the development of functional foods enriched in them are priority lines.

Likewise, BITAL aims to provide solutions for the generation of added value in the production of agri-food products through the application of innovative food packaging and processing techniques, with special emphasis on pre-prepared and ready-to-eat products, as well as through the use of agricultural by-products. Finally, BITAL coordinates and manages R+D+i projects in the field of plant biotechnology, food quality and safety, integrated production and sustainable agri-food production.

Mediterranean Research Centre for Economics and Sustainable Development (CIMEDES)

The current demands of the business sectors and society in the face of the objectives of sustainable development require a response and commitment from the agents in charge of research and training. In particular, there is a need to address socio-economic and natural resource problems in a multidisciplinary and holistic manner. The basic objective of this centre is to carry out research activities, innovation, promotion of lines of study, transfer of results and application to the productive sector and society, as well as collaboration with specific training complements, all related to economic, social and environmental sustainability as well as to the development and implementation of strategies in development processes, particularly in the context of southeastern Spain.

Objectives:

- To promote research framed in strategies for sustainable economic, social and environmental development, in the public and private spheres, particularly in the agri-food sectors and their auxiliary organizations and industry, services (tourism, transport, etc.) and natural stone, as basic to our current environment, but also those sectors or productive activities susceptible to potential development.

- To transfer results to companies, organizations and institutions, with a practical and holistic approach to sustainable development.
- To train and prepare new specialists in the field of sustainable development, with specific training complements in Bachelor's, Master's and Doctorate degrees, as well as through courses, conferences and seminars in collaboration with other agents in the public and private sector.
- To promote multidisciplinary work with other institutions, centres or national and international groups that complement, with a holistic vision, the research that is the object of the centre.

Solar Energy Research Centre (CIESOL)

The Solar Energy Research Centre (CIESOL) is a joint centre owned by the Almería Solar Platform, belonging to the Centre for Energy, Environmental and Technological Research (CIEMAT). The Centre, launched in 2005, reflects the long experience in joint research between both organisations and has its own building installed in the technological area of the Campus of the University of Almeria. This building houses laboratories and facilities for the testing of systems and processes and, in turn, is a container-demonstrator of various techniques for active and passive solar conditioning of spaces. CIESOL carries out R+D in the following areas:

- Applications of solar energy in water treatment
- Photo-assisted chemical synthesis
- Solar Cooling
- Solar Resource Assessment
- Development of SCADA systems for supervision and monitoring in solar installations.
- Modelling and analysis of solar thermal plants.
- Home automation oriented towards energy efficiency.
- Postgraduate and PhD studies in solar energy

Examples of Green initiatives in other Spanish universities

UNIVERSITY OF GRANADA

The Environmental Quality Unit of the University of Granada was created in 2000 with the intention of being the environmental protection and management service of the University of Granada.

Our lines of work include:

- Environmental Management of the University of Granada, mainly through the maintenance of the ISO 14001 environmental management system of the Ugr.
- Environmental Education.

- Cooperation and collaboration with other institutions in environmental matters.

Our goal is to achieve a more sustainable and environmentally friendly University and to enhance the positive impact we have on society.

UNIVERSITY OF CADIZ

The functions of the UCA Office for Sustainability are as follows:

- To contribute to the sustainable development of our university by applying the necessary actions following a model of responsibility, in order to respond to the expectations of the university community.
- Promote and operate coordinated strategies to prevent, solve or mitigate environmental impacts and problems generated on university campuses and their surrounding areas, as well as in the natural areas supervised by the university.
- Implement an educational communication and dissemination strategy among university students and users of their services, to favor and enhance their involvement in environmental and sustainability management.
- Establish criteria to protect the natural resources that are included in the university campuses of the UCA.
- To offer the university community an example of reflection and intervention of good environmental practices, to induce initiatives that improve their quality of life.
- Evaluate and assess the physical infrastructure, in order to optimize its operation from a sustainability perspective, promoting Sustainable Mobility. The design of an action plan that must be aimed at greater sensitivity both for sustainable transport and energy saving, as well as for the ability to connect with the objectives of awareness and social responsibility of the University with students and society in general.
- To encourage responsible participation on university campuses in carrying out actions that improve the sustainability of the educational centre and its environment.
- To raise awareness among the university community: teaching and research staff, administrative and service staff and students of the environmental and social problems of their closest university environment.
- To improve the knowledge and understanding of environmental and social problems by the university community.
- To complement the training of students for the exercise and development of a certain professional activity, expanding the teaching that is taught in university degrees or master's degrees in order to develop the knowledge and skills of students in a more sustainable environment.

UNIVERSITY OF CORDOBA

The Environmental Protection Area (hereinafter SEPA) of the Prevention and Protection Service is the team in charge of environmental management at the University of

Córdoba and belongs to the General Directorate of Prevention and Environmental Protection.

- MISSION

Our mission is to develop actions to incorporate environmental criteria in the management of the University, promoting among its members an environmental culture based on responsibility for the protection and improvement of the environment. These actions will be carried out within the framework of continuous improvement, pollution prevention and compliance with environmental legal requirements as well as any other requirement that is applicable to our activity, including those defined by the University of Cordoba.

- VISION

Our vision is to be the reference of the university community of Cordoba in the environmental field, developing our activities within a framework of efficiency, quality and continuous improvement. To this end, we have a team with a high level of professionalism, valuable multidisciplinary training and high motivation in the development of our work.

- SERVICES PROVIDED

SEPA provides services in three different areas: environmental advice. waste management and training, information and environmental awareness of the university community.

UNIVERSITY OF MALAGA

SMART-CAMPUS Features:

- Define and develop the concept of "UMA Smart Campus", as a smart and sustainable campus, based on the application of new technologies.
- Develop transversal projects with other vice-rectorates in areas of teaching, research, innovation and social commitment related to the development of the "UMA Smart-Campus".
- Collaborate with other public and private, national and international institutions in the area of "smart-cities".
- Promote the use of the campus as an "urban-lab" in research, transfer and innovation projects.
- Design and develop the environmental sustainability strategy of the University of Malaga.
- Define and develop policies for the management of the university campus.
- Plan and supervise the execution of new buildings and the improvement of existing ones.

- Define and develop policies for the maintenance of buildings, infrastructures and urbanization.
- To design and develop policies for the coordination of telecommunications, electricity and water infrastructures.
- Define and develop policies to coordinate the conservation and development of green areas.
- To coordinate the management of the University's common spaces, infrastructures and buildings.
- To design and develop policies for the promotion of sustainable mobility.
- To establish the guidelines and adopt the resolutions to be executed by the technical, administrative units and support structures for teaching and research, in accordance with their competences, that are attached to this governing body.

MIGUEL HERNÁNDEZ UNIVERSITY

The ENVIRONMENTAL AND SUSTAINABLE DEVELOPMENT AREA of the Miguel Hernández University of Elche (UMH), also known as the ENVIRONMENTAL OFFICE, is an administrative unit of a consultative and management nature in environmental matters and sustainable development goals, dependent on the VICE-RECTORATE FOR INCLUSION, SUSTAINABILITY AND SPORTS.

In addition to promoting improvements in the environmental management of the university through the control of its environmental aspects, it develops environmental awareness work aimed at the entire university community, through the organization of conferences, campaigns, and participation through volunteering on this subject, as well as support for the achievement of the Sustainable Development Goals.

Functions:

- To promote the training and environmental awareness of the university community and encourage their participation through volunteering on this subject.
- Support for the performance of studies on environmental matters and assessment of environmental risks in research projects of the University.
- Measurement of the environmental quality of university activity through the monitoring of environmental indicators and sustainable development goals in the environmental axis, as well as the proposal of measures that help to continuously improve the environmental performance of the University.

  Related activities include:

  - Annual preparation of the UMH Environmental Scoreboard.
  - Management of Hazardous Waste from laboratories and workshops of the UMH.

- Annual Report on the Calculation of the Carbon Footprint of the UMH and registration with the Ministry
- Ensure compliance with environmental legislation as well as with the commitments adopted in the Environmental Policy of the OA and the UMH
- Etc.

- Coordination and advice to other Services and Units of the University, and other entities, on environmental issues.
- Implementation and monitoring of environmental management systems and objective programmes.

Related activities include:

- Audit and Certification of the Environmental Management System according to AENOR's ISO 14001:2015 International Certification
- Development and Evaluation of compliance with the Environmental Objectives Guide in services and units of the UMH.

TEST

Questions	**Correct answer***
1. Which partner has created a teaching centre with eco-friendly laboratories. A. SUPBIOTECH B. Plovdiv Agricultural University (AUP) C. Agricultural University of Iceland (AUI) D. None of the above	
2. Which partner is highly committed to create a campus as a living lab by implementing some reinforcing actions, such as creating connected beehives, insect hotels, fare trade initiatives or organising a Food Transition Festival? A. HEPL B. UNIMORE C. AUP D. SUPBIOTECH	
3. Which other green initiatives have the students been involved in? A. Awareness campaigns B. Solidarity conferences C. Clean-up initiatives D. All of the above	
4. Which body at the University of Almería is responsible for sustainability, sports, and university health? A. Vice-Rectorate for Research B. Vice-Rectorate for Sports, Sustainability, and Healthy University	

C. Sustainable Mobility Commission
D. Environmental Management Office

5. What is one of the key objectives of the University of Almería related to sustainability, according to its Strategic Plan?
A. Focus solely on sports practices
B. Develop sports infrastructure
C. Contribute to the Sustainable Development Goals (SDGs)
D. Reduce the number of students

6. Which of the following areas is part of UAL's annual sustainability action plan?
A. Urbanization and biodiversity
B. International Mobility
C. Technology and Innovation
D. Fair Trade

7. What strategy does the University of Almería adopt to integrate sustainability into teaching?
A. Promote extracurricular activities
B. Incorporate transversal sustainability competencies in Bachelor's and Master's degrees
C. Increase enrollment in environmental science programs
D. Promote international student mobility

8. What is the main goal of the Andalusian Centre for Global Change – Hermelindo Castro at UAL?
A. Promote urban mobility
B. Mitigate the effects of climate change
C. Build new energy-efficient facilities
D. Support sports and health on campus

9. What sustainability-related action has been implemented on UAL's campus?
A. Creation of an internal bike lane
B. Increase in administrative staff
C. Reduction of tuition fees
D. Installation of solar panels on all buildings

10. What annual event does UAL hold to raise awareness about climate change?
A. Sustainable Mobility Week
B. World Climate Day
C. Earth Day
D. Water Day

*Correct answers: 1A, 2B, 3D, 4B, 5C, 6A, 7B, 8B, 9A, 10D.

ADDITIONAL MATERIALS

1. https://graenskref.is/english/	The Green Steps Program in which the AUI is involved

2.	https://www.lbhi.is/images/pdf/adrar%20stefnur%20og%20aaetlanir/loftslagsstefna_lbhi.pdf https://www.lbhi.is/images/pdf/adrar%20stefnur%20og%20aaetlanir/umhverfisstefna_lbhi.pdf	AUI's climate and environmental policy
3.	https://www.hepl.be/fr/articles/2024/05/22/986-Celebration-citoyennete-mondiale-solidaire-autour-ODD https://austudents.eu/	Examples of Students solidarity and environmental activities (HEPL and AUP)
4.	https://www.unimoresostenibile.unimore.it/	Sustainability activities from UNIMORE
5.	https://drive.google.com/file/d/1iFimd95N2xxB0lze9n9SM_IFRUcOMb7g/view	Document prepared by the CRUE for the self-diagnosis of the management of Environmental Sustainability in the University

3.4. Module III

SKILLS FOR EMERGING LABOUR MARKET NEEDS, GREEN JOBS, AND NEW PROFESSIONAL PROFILES

GENERAL INFORMATION ABOUT MICROTRAINING

MICROTRAINING OVERVIEW:

Welcome to Module III on “Skills for Emerging Labour Market Needs Green Jobs and New Professional Profiles”!

In this module, we will explore how new curricula are shaping the future of teaching and practice in sustainability. You'll learn how these innovative approaches combine academic theory with practical application in order to tackle environmental, social and economic challenges.

We'll delve into emerging areas such as natural resource management, renewable energies, circular economy and environmental policies, and understand how these disciplines help solve real problems in our daily lives. We will also highlight essential skills for green professionals, such as critical thinking, problem solving, innovation and interdisciplinary collaboration. These skills are central to leading in the field of sustainability.

Finally, we will explore different educational approaches to promoting sustainability, from formal education to community awareness campaigns.

This course is a valuable opportunity to acquire the knowledge and skills needed to actively contribute to a more sustainable future.

Join us on this journey of learning and transformation!

MICROTRAINING SPECIFICS

- SETTING: On-line
- DURATION (HOURS): 2-3 h
- MATERIALS: 1 microtraining contains **2 topics (55-75 min each)**
- TOPICS:
  1. New Curriculums for Sustainable Development
  2. Up-Skilling and Re-Skilling Programms
- LANGUAGE: English
- INDIVIDUAL WORK

WHAT WILL YOU GAIN?

In this training you will:

- Learn about new professions and fields of study related to sustainable development;
- Know the key competences needed to work with innovative technologies and environmentally responsible practices;
- Know educational strategies to promote environmental awareness and sustainability at different levels of education;
- Be able to recognize emerging opportunities in the green job market;
- Be able to assess the importance of new curricula in training professionals for environmental challenges;
- Demonstrate a deeper understanding of the intersections between science, society and the environment.

MICROTRAINING INTRODUCTORY VIDEO

Link: introductory video

TOPIC 1: New Curriculums for Sustainable Development

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STRUCTURE OF THE TOPIC 1:

1. Introduction (5 min)
2. Video presentation 1 (15min)
3. Reading 1 (7 min)
4. Video presentation 2 (15 min)
5. Reading 2 (7min)
6. Test (5-10 min)
7. Additional materials (20-30 min)
8. References
9. Glossary

INTRODUCTION

Welcome to our training TOPIC on NEW CURRICULUMS FOR SUSTAINABLE DEVELOPMENT. This course is designed to provide a comprehensive and practical understanding of key sustainability subjects.

Theory and Practice: What Are New Curricula for Sustainable Development?

We will explore how new curricula combine academic theory with practical application, preparing students to tackle environmental, social, and economic challenges.

Exploration of New Study Areas and Their Practical Applications

We will analyze emerging fields such as natural resource management, renewable energy, circular economy, and environmental policies, highlighting how these disciplines can be applied to solve real-world problems.

Essential Skills for Green Professionals

We will focus on the fundamental skills green professionals need, such as critical thinking, problem-solving, innovation, interdisciplinary collaboration, and project management.

Impact of Environmental Education on Future Careers

We will discuss how environmental education influences career paths and prepares students to become leaders in sustainability.

Awareness, Consciousness, and Socio-Environmental Education

We will address the importance of raising awareness and consciousness about socio-environmental issues, promoting a culture of environmental responsibility.

Role of Environmental Awareness in Modern Society

We will examine how environmental awareness has become essential in modern society, influencing public policies and business practices.

Approaches to Promote Sustainability Through Education

Finally, we will discuss various educational approaches that can be adopted to promote sustainability, from formal education to community awareness campaigns.

This course is an opportunity to develop the knowledge and skills that will enable you to actively contribute to a more sustainable future. Join us on this journey of learning and transformation.

VIDEO PRESENTATION 1

Link: video presentation 1

READING 1: NEW CURRICULUMS FOR SUSTAINABLE DEVELOPMENT – PART I

1. **Topic Overview**

   Understanding the **objectives** and **structure of the course** on sustainable development.

2. **Theory and Practice: What are new curricula for sustainable development?**

   Understanding the intersection between academic theory and practical application in sustainable contexts.

In contemporary times, new curricula for sustainable development represent an innovative approach that integrates academic theory with practical application in sustainable contexts. This interdisciplinary approach aims to equip students with the skills necessary to face the complex challenges of environmental, social, and economic sustainability.

Intersection of Academic Theory and Practical Application:

- Holistic Understanding: New curricula for sustainable development are based on a holistic understanding of sustainable problems and solutions. Academic theory provides the conceptual framework necessary to understand the fundamental principles behind sustainability, including concepts like life cycle, ecological footprint, and decision support systems.
- Application in Real Contexts: The true innovation of these curricula lies in their emphasis on the practical application of these concepts in real contexts.

Students are challenged to translate theoretical knowledge into tangible solutions that address specific environmental and social problems.

- Integration of Disciplines: These curricula promote the integration of various disciplines, from environmental sciences and engineering to economics and social sciences. The intersection of different fields allows for a comprehensive and interdisciplinary approach to solving complex problems.
- Project-Based Learning: A key feature of these curricula is project-based learning, where students collaborate on practical sustainability initiatives. This involves identifying real challenges, developing innovative solutions, and implementing sustainable strategies.

Benefits of New Curricula:

- Preparation for the Real World: Students who go through these curricula are better prepared to face real-world challenges, where sustainability is a growing priority across all sectors of society.
- Innovation and Creativity: The integration of theory and practice promotes innovation and creativity, encouraging students to think outside the box and develop disruptive solutions to environmental problems.
- Tangible Impact: The results of these curricula can be seen through the tangible impact that students have in implementing sustainable projects, whether in reducing the carbon footprint, conserving biodiversity, or promoting responsible business practices.

In conclusion, new curricula for sustainable development represent an evolution in how education addresses contemporary challenges. By integrating academic theory with practical application, these curricula empower students to be change agents in a society increasingly focused on sustainability.

3. Exploration of new fields of study and their practical applications

Knowledge about innovative areas such as renewable energy, environmental management, and sustainable design.

In the context of sustainable development, exploring new study areas plays a crucial role in the search for innovative and sustainable solutions to environmental and social challenges. Some of the most promising areas include renewable energy, environmental management, and sustainable design.

Renewable Energy:

Renewable energy is a rapidly growing field that aims to replace non-renewable energy sources with clean and sustainable ones. Students exploring this area gain knowledge about technologies such as solar, wind, hydroelectric, biomass, and geothermal energy. In addition to understanding the theoretical principles behind these technologies,

students learn about practical applications in the design, implementation, and management of renewable energy projects.

Environmental Management:

Environmental management involves the application of practices and policies to minimize the environmental impact of human activities. Students specializing in this area explore concepts such as environmental impact assessment, waste management, biodiversity conservation, and environmental policies. Their education covers not only theory but also the practical skills needed to implement effective environmental management strategies in various sectors, such as industry, government, and non-governmental organizations.

Sustainable Design:

Sustainable design focuses on creating products, buildings, and infrastructures that meet present needs without compromising future generations. Students in this area explore concepts such as eco-design, sustainable materials, energy efficiency, and circular economy. They learn to apply these concepts in practice, developing innovative solutions that minimize waste, reduce environmental footprints, and promote more sustainable lifestyles.

Practical Applications:

The exploration of these new study areas extends beyond the academic environment. Students are encouraged to participate in internships, applied research projects, and industry collaborations to put their acquired knowledge into practice. This direct contact with the real world allows them to develop practical skills and gain relevant experience, preparing them for meaningful and impactful careers in the field of sustainable development.

In summary, exploring new study areas such as renewable energy, environmental management, and sustainable design is essential to addressing current global challenges. By combining theoretical knowledge with practical applications, students are prepared to lead the transition toward a more sustainable and resilient future.

4. Essential Skills for Green Professionals

Development of technical skills and knowledge required to work with sustainable technologies and practices.

To succeed in a career focused on sustainability and green development, professionals need to develop a diverse set of technical skills and specific knowledge. These skills enable professionals to design, implement and manage sustainable solutions that promote a positive impact on the environment and society.

Core Knowledge:

- Environmental Sciences: Understanding the basic principles of environmental sciences is fundamental. Professionals should have solid knowledge of ecosystems, biodiversity, pollution, climate change and natural resources.
- Sustainable Technologies: Being familiar with sustainable technologies is essential. This includes knowledge of renewable energy, energy efficiency, waste management, water treatment and the development of ecological products.
- Environmental Legislation: An understanding of environmental laws and regulations is crucial to ensure compliance and promote sustainable practices within organizations.

Technical Skills:

- Environmental Project Management: Ability to plan, execute and monitor environmental projects, ensuring that they are completed on time and within budget, and that they achieve sustainability objectives.
- Environmental Data Analysis: Being able to collect, analyze and interpret environmental data to make informed decisions and implement effective solutions.
- Green Technology Knowledge: Know how to use and implement green technologies, such as photovoltaic systems, wind turbines, waste management systems, among others.

Interpersonal skills:

- Effective Communication: Being able to clearly communicate sustainable ideas and concepts to different audiences, including colleagues, clients and the general public.
- Multidisciplinary Teamwork: Ability to collaborate effectively with professionals from different fields, such as engineers, scientists, architects and managers, to achieve common sustainability goals.
- Problem Solving: Develop skills to identify and solve environmental challenges creatively and efficiently.

Adaptability and Continuous Learning:

- Technological Evolution: Being open to keeping up with technological and scientific changes in the field of sustainability and adapting quickly to new practices and technologies.
- Training and Professional Development: Invest in continuous training to keep up to date with best practices and emerging trends in the field of sustainability.

By developing these skills and knowledge, professionals will be prepared to lead the transition to a greener and more sustainable economy, contributing to a more equitable and environmentally conscious future.

VIDEO PRESENTATION 2

Link: video presentation 2

READING 2

1. Social and Environmental Awareness and Education

The importance of environmental awareness for a more sustainable society

Environmental awareness and education for sustainability are essential pillars in building a modern society that is more aware, responsible and committed to preserving the environment and the well-being of present and future generations.

This awareness goes beyond basic knowledge about environmental issues; it implies a deep understanding of the interconnections between human actions and the natural environment, as well as the associated social implications.

Importance of Environmental Awareness

- Promoting Responsibility: Environmental awareness instills a sense of individual and collective responsibility towards the environment. By understanding the impacts of their actions on the planet, people become more aware of their daily choices and their role in preserving natural resources.
- Encouraging Civic Participation: Socio-environmental education empowers citizens to actively participate in decision-making that affects the environment, whether at a local, national or global level. An informed and involved society is essential for promoting sustainable policies and practices.

Benefits of Environmental Awareness:

- Empowering Communities: Education for sustainability empowers communities to address local environmental challenges, promoting the sustainable management of natural resources, as well as the conservation of biodiversity and the development of solutions adapted to local needs.
- Reducing Inequalities: Environmental awareness and education for sustainability are powerful tools in promoting social equity and reducing inequalities. By providing access to knowledge and resources, these initiatives help ensure that all communities have the opportunity to thrive sustainably.
- Reducing unnecessary consumption: By increasing awareness of the environmental impact of products and consumption habits, people tend to adopt more sustainable behaviors, such as reducing resource consumption, using public transport, recycling and preferring eco-friendly products. These

individual changes contribute to reducing the ecological footprint and minimizing the environmental impact of human activities.

- Biodiversity conservation: Environmental awareness encourages the protection of natural habitats and biodiversity. People come to appreciate the importance of preserving species and ecosystems for ecological balance.

Challenges and Opportunities:

- Effective Communication: It is crucial to develop effective communication strategies to raise awareness among a diverse public and encourage specific actions in favor of sustainability. This requires communication strategies adapted to different audiences and cultural contexts.
- Interdisciplinary Collaboration: Raising environmental awareness requires the joint efforts of educators, governments, non-governmental organizations and the private sector to achieve a significant and lasting impact.
- Integration into Education Systems: The inclusion of sustainability education in education systems is essential to ensure that future generations are prepared to face emerging environmental challenges.

To summarize, social and environmental awareness and education play a vital role in transforming mentalities and promoting sustainable behavior. By raising environmental awareness, we can create a society that is more conscious, responsible and committed to building a sustainable future for all.

2. Approaches to promoting sustainability through education

Effective educational strategies to promote behavior change and sustainable practices

Education plays a key role in promoting sustainability by empowering individuals and communities with the knowledge, skills and values needed to adopt more sustainable behaviors and practices. There are several effective educational approaches that can catalyze behavior change and promote sustainability in different contexts.

Formal and Informal Education

- Curriculum Integration: Integrating sustainability concepts into school curricula from an early age is essential. This involves addressing topics such as environmental conservation, responsible use of resources and environmental ethics in subjects such as science, geography, history and even mathematics and languages.
- Extracurricular Programs: Offering extracurricular activities related to sustainability, such as environmental clubs, school gardens and recycling projects, promotes hands-on learning and stimulates students' involvement with the environmental cause.

Education for Action

- Project-Based Learning: Involving students in practical projects related to sustainability, where they can identify local environmental problems and develop concrete solutions, helps consolidate knowledge and encourages sustainable initiatives.
- Simulations and Educational Games: Using simulations and role-playing games to explore complex sustainability issues, such as resource management or environmental decision-making, allows students to experiment with different perspectives and problem-solving strategies.

Community Awareness and Engagement:

- Community Partnerships: Establish partnerships with civil society organizations, local businesses and governments to involve students in sustainability projects with a real impact on the community, promoting experiential learning and civic engagement.
- Awareness Campaigns: Organizing awareness campaigns on specific topics, such as plastic reduction, sustainable mobility or biodiversity conservation, creates an environment conducive to discussions and actions aimed at sustainability.

Continuing Education and Training:

- Educator Training: Training teachers and educators with innovative resources and methodologies to teach sustainability in an effective and inspiring way.
- Professional Development: Offering professional development opportunities for professionals from different areas, encouraging the integration of sustainable practices into their work activities.

Benefits of Educational Strategies

- Passing on Values: By educating future generations about environmental issues, we are passing on values of respect, responsibility and solidarity towards the planet and all forms of life on it.
- Skills Development: These approaches not only impart knowledge, but also develop critical skills, such as critical thinking, problem-solving and collaboration, which are essential for facing global challenges.
- Cultural Transformation: They promote a cultural shift towards more sustainable lifestyles by inspiring individual and collective action to protect the environment.

In short, effective educational strategies play a vital role in promoting sustainability, by inspiring and empowering individuals to act consciously and responsibly towards the

environment. By adopting innovative and participatory approaches, we can create a more sustainable and resilient society for the future.

3. Impact of environmental education on future careers

Analysis of the role of environmental education in developing sustainable careers and solving global challenges.

Environmental education plays a crucial role in the development of sustainable careers and the ability of professionals to tackle global challenges related to the environment. This method of education goes beyond transmitting knowledge about the environment, as it encompasses a holistic approach that promotes a change in mentality and behavior towards sustainability.

Sustainable Career Development

- Awareness and Commitment: Environmental education raises awareness of environmental challenges and inspires a commitment to sustainable practices in professional careers. Professionals who are well informed about environmental issues are better prepared to integrate sustainability into their daily activities.
- Specific Skills: Environmental education provides technical skills and specialized knowledge needed to work in areas such as environmental management, renewable energy, nature conservation, among others. These skills are increasingly valued by employers and are essential for success in sustainability-oriented careers.

Solving Global Challenges

- Contributing to the Global Agenda: Environmentally educated professionals play a key role in solving global challenges such as climate change, biodiversity loss, pollution and resource scarcity. Environmental education empowers them to develop and implement innovative solutions to tackle these pressing problems.
- Promoting Sustainable Practices: Through environmental education, professionals acquire the tools to promote and defend sustainable practices in organizations, communities and society in general. This positive influence is essential for achieving sustainable development goals at a global level.

Importance of Continuing Education

- Adaptation to Change: Given the rapid pace of environmental and technological change, continuing environmental education is essential to keep professionals up to date and prepared to face new challenges.

- Innovation and Creativity: Environmental education fosters innovation and creativity, encouraging the development of sustainable solutions that are adaptable to future needs.

In short, environmental education has a transformative impact on future careers by empowering professionals with the knowledge, skills and values needed to drive sustainability and tackle global environmental challenges. Investing in this form of education is key to building a greener and more equitable future.

TEST

Questions	**Correct answer**

1. What are new curricula for sustainable development?

   A. represent an innovative approach that integrates academic theory with practical application in sustainable contexts

   B. aim to equip students with the necessary skills to face the complex challenges of environmental, social and economic sustainability

   C. enable students to be agents of change in a society increasingly focussed on sustainability

   F. All of the above

2. Indicate which option is correct

   A. The new curricula for sustainable development prepare students to face the challenges of the real world, where sustainability is not a priority

   B. The new curricula for sustainable development promote innovation and creativity, encouraging students to think outside the box and develop disruptive solutions to environmental problems

   F. The new curricula for sustainable development do not represent an evolution in the way education addresses contemporary challenges

3. Indicate which areas of study are most important and play a relevant role in the context of sustainable development

   A. Environmental management, sustainable design, sustainable food and sustainable mobility

   B. Renewable energy, sustainable design and sustainable mobility

   C. Renewable energy, environmental management and sustainable design

4. What are the main technical skills that a Green Professional should possess?

A. Ability to plan, execute and monitor environmental projects

B. Ability to collect, analyse and interpret environmental data in order to make informed decisions and implement effective solutions

C. Knowledge of the use and implementation of green technologies

D. All of the above

5. What are the main interpersonal skills a Green Professional should possess?

A. Communicate effectively, work in multidisciplinary teams and solve problems

B. Working in multidisciplinary teams, communicating effectively and creating problems

C. Presenting challenges, communicating effectively and working alone on green transition issues

6. The benefits of Environmental Awareness Raising

A. Promoting the consumption of raw materials and reducing waste

B. Promoting the reduction of unnecessary consumption and the conservation of biodiversity

C. Promoting a reduction in unnecessary consumption and an increase in waste production

7. Sensitisation, awareness-raising and socio-environmental education

A. They play a fundamental role in transforming mentalities and promoting more sustainable and environmentally friendly behaviour

B. They promote environmental awareness, making citizens more unaware of environmental issues

C. They seek to create tools that increase environmental awareness through the adoption of a linear economy

8. Examples of more sustainable behaviour include:

A. Use of individual transport to the detriment of public transport

B. Use of public transport and soft modes of mobility, waste separation, preference for products that have a greater impact on the environment

C. Reducing resource consumption, using public transport, separating waste and preferring to use local products

9. These are approaches to promoting sustainability:

A. Formal and Informal Education, Education for Action and Community Awareness and Engagement

B. Continuing Education and Training, Education for Action and Community Awareness and Engagement

C. Formal and Informal Education, Education for Action and Community Awareness and Engagement and Continuing Education and Capacity Building

10. The benefits of educational strategies are:

A. The development of competences and cultural transformation

B. Curriculum integration and extracurricular programmes

C. Community awareness and training

*Corrects answers: 1D, 2B, 3C, 4D, 5A, 6B, 7A, 8C, 9C, 10A

ADDITIONAL MATERIALS

1.	EU action to address the energy crisis - European Commission (europa.eu)	The energy crisis has led to a sharp rise in energy prices and brought hardship for Europeans. The EU is taking strong action to address that, and this web page details how.
2.	Strategies to achieve a carbon neutral society: a review | Environmental Chemistry Letters (springer.com)	The authors present a strategy to reach a carbon neutral economy by examining the outcome goals of the 26th summit of the United Nations Climate Change Conference of the Parties (COP 26).
3.	https://sdgs.un.org/goals	The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other

deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

REFERENCES

1. Arslan, S., & Curle, S. (2021). Sustainable development goals in the English language high school curriculum in Turkey. *European Journal of Education*, *56*(4), 681–695. https://doi.org/10.1111/ejed.12473
2. Belcher, F. (2024). Settler futurity in the local and global: Problematising education for sustainable development in the Australian curriculum. *Policy Futures in Education*, *22*(5), 928–947. https://doi.org/10.1177/14782103231209551
3. Clark, K. R. (2022). Education for Sustainable Development, Curriculum Reform and Implications for Teacher Education in a Small Island Developing State. *Discourse and Communication for Sustainable Education*, *13*(1), 145–153. https://doi.org/10.2478/dcse-2022-0011
4. Cristóvão, A. M., Valente, S., Rebelo, H., & Ruivo, A. F. (2023). Emotional education for sustainable development: a curriculum analysis of teacher training in Portugal and Spain. *Frontiers in Education*, *8*. https://doi.org/10.3389/feduc.2023.1165319
5. Eilks, I., & Linkwitz, M. (2022). Greening the chemistry curriculum as a contribution to education for sustainable development: When and how to start? In *Current Opinion in Green and Sustainable Chemistry* (Vol. 37). Elsevier B.V. https://doi.org/10.1016/j.cogsc.2022.100662
6. Eli, Munkebye, Scheie, E., Gabrielsen, A., Jordet, A., Misund, S., Nergård, T., & Øyehaug, A. B. (2020). Interdisciplinary primary school curriculum units for sustainable development. *Environmental Education Research*, *26*(6), 795–811. https://doi.org/10.1080/13504622.2020.1750568
7. Fekih Zguir, M., Dubis, S., & Koç, M. (2021). Embedding Education for Sustainable Development (ESD) and SDGs values in curriculum: A comparative review on Qatar, Singapore and New Zealand. In *Journal of Cleaner Production* (Vol. 319). Elsevier Ltd. https://doi.org/10.1016/j.jclepro.2021.128534
8. Hendawy, M., Junaid, M., & Amin, A. (2024). Integrating sustainable development goals into the architecture curriculum: Experiences and perspectives. *City and Environment Interactions*, *21*. https://doi.org/10.1016/j.cacint.2023.100138
9. Ives, C. D., Abson, D. J., von Wehrden, H., Dorninger, C., Klaniecki, K., & Fischer, J. (2018). Reconnecting with nature for sustainability. *Sustainability Science*, *13*(5), 1389–1397. https://doi.org/10.1007/s11625-018-0542-9

10. João, P., Sá, P., Henriques, M. H., & Rodrigues, A. V. (2022). Sustainable Development in Basic Education Sciences in Portugal—Perspective of Official Curriculum Documents. *Sustainability (Switzerland)*, *14*(9). https://doi.org/10.3390/su14095651

11. Johnson, K. A., & Hamernik, D. L. (2015). Science and society: Challenges of communicating science. *Animal Frontiers*, *5*(3), 6–12. https://doi.org/10.2527/af.2015-0025

12. Kjosevski, S., Lutovska, M., & Mucha, A. (n.d.). *Curriculum Development for Education Towards Sustainable Development-A Real Example* (Vol. 7, Issue 2).

13. Langan, R. J., Onel, N., & Weidner, K. (2023). Addressing the UN's Sustainable Development Goals: An Examination of Sustainability Offerings in Marketing Curriculum and a Framework for Advancement. *Journal of Marketing Education*. https://doi.org/10.1177/02734753231203006

14. Lei, C. U., & Tang, S. (2023). An analysis of Hong Kong high school curriculum with implications for United Nations sustainable development goals. *Smart Learning Environments*, *10*(1). https://doi.org/10.1186/s40561-023-00267-5

15. Li, W. T., & Shein, P. P. (2023). Developing sense of place through a place-based Indigenous education for sustainable development curriculum. *Environmental Education Research*, *29*(5), 692–714. https://doi.org/10.1080/13504622.2022.2098933

16. NIGLIO, O. (2021). Towards a Humanist Education: Understanding Cultural Heritage to Redesign the Future. *Academia Letters*. https://doi.org/10.20935/al3223

17. Svalfors, U. (2017). Education for Sustainable Development and Multidimensional Implementation. A Study of Implementations of Sustainable Development in Education with the Curriculum of Upper Secondary School in Sweden as an Example. *Discourse and Communication for Sustainable Education*, *8*(2), 114–126. https://doi.org/10.1515/dcse-2017-0020

18. Thomas, I. (2014). Special issue-Pedagogy for education for sustainability in higher education. In *Sustainability (Switzerland)* (Vol. 6, Issue 4, pp. 1705–1708). MDPI. https://doi.org/10.3390/su6041705

19. Vințe, C., Smeureanu, I., Dârdală, M., & Reveiu, A. (2021). Sustainable development in education – automating curriculum assessment. *Technological and Economic Development of Economy*, *27*(5), 1159–1185. https://doi.org/10.3846/tede.2021.15018

TOPIC 2: Up-Skilling and Re-Skilling Programms

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STRUCTURE OF THE TOPIC 1:

1. Introduction (5 min)
2. Video presentation 1 (15 min)
3. Reading 1: The climate crisis (7 min)
4. Video presentation 2 (8 min)
5. Reading 2: EU's response: the European Green Deal (7min)
6. Test (5-10 min)
7. Additional materials (30-40 min)
8. References
9. Glossary

INTRODUCTION

Welcome to our training TOPIC on UP-SKILLING AND RE-SKILLING PROGRAMS. This course is divided in two different parts :

Part I : Corporate Social Responsibility

This topic will provide you knowledge about CSR and how to implement CSR strategy into your company.

Part II : Green Universities

Here we will explain how a University can implement sustainable development strategy in all departments.

For each topic, you will have examples of Green Jobs or Green Universities.

VIDEO PRESENTATION 1

Link: video presentation 1

READING 1

I. Introduction

What is corporate social responsibility? How to implement CSR in a company? What does it mean to be a B-corporation? Which skills do you need if you want to work in CSR departments? Which jobs are related to sustainable development?

All these questions will find an answer in this module on Corporate Social Responsibility (CSR).

II. A brief history of corporate social responsibility

Howard Bowen was the first economist to define the notion of corporate social responsibility (CSR) in his article "Social responsibilities of the businessman" [1]. For

him, company's decisions and actions have a direct impact on stakeholders, employees, customers and finally on the society quality of life.

In 1971, the Committee for Economic Development introduce the relationship between businesses and society that it's refer as a business's corporate citizenship [1]. At the same time, scientists, economists and business leaders published in 1972 a report called "The Limits to Growth" that ask the question of continuous growth and ecological footprint [1]. Finally, Carroll gave a clear definition of CSR in 1979: "The social responsibility of business encompasses the economic, legal, ethical and discretionary expectations that society has of organizations at a given point in time" [1].

The 1980s were marked by a growing awareness on the part of the international community, leading to the definition of the concept of sustainable development, thanks to the Brundtland report "Our common future" and the creation of the IPCC [1]. These events were followed by several international initiatives like the creation of the European Environment Agency (1990), the Earth Summit in Rio (1992) and the Kyoto protocol (1997). In the meantime, some fundamental principles of CSR emerged:

- The concept of Corporate Social Performance (CSP) by Wood (1991) that defined the principles of CSR which include legitimacy, public responsibility and managerial discretion [1].

- The pyramid of CSR defined by Carroll (1991) based on four responsibilities: the economic, the legal, the ethical and the philanthropic responsibilities [1].

- Burke and Logsdon (1996) identified five dimensions of strategic CSR : centrality, specificity, proactivity, voluntarism and visibility [1].

- Elkington (1994) defined "The Triple Bottom Line" as the sustainable framework of a company "People, Planet, Profit" like the three pillar of sustainable development [1].

On July 2000, The United Nation launched the United Nation Global Compact (UNGC) which is an initiative that encourage companies to adopt social responsibility by committing to integrate and promote ten principles linked to human rights, international labor standards, environment and fight against corruption [1].

This initiative was followed by the European Strategy for CSR in 2002 and the creation of a specific ISO certification in 2010, the ISO 26000, that will complement the quality and environmental management standards, ISO 9001 and ISO 14001 [1].

In 2015, two majors' international events occurred: COP 21 in Paris that led to Paris Agreement which is to keep the rise in global surface temperature to well below 2°C above pre-industrial levels, preferably the limit of the increase should be 1,5°C [1]. Secondly, The United Nations created 17 world Sustainable Development Goals (SDGs) that should be met by 2030. Even if this SDGs don't represent any commitments for compagnies, an EU directive requires large companies to disclose non-financial and diversity information beginning on their 2018 report [1].

Finally, one of the last EU directives is the Corporate Sustainability Reporting Directive (CSRD) launched in 2024 and that require large companies to publish reports on the social and environmental risks they face and on how their activities impact people and the environment [2].

III. Key concepts

The pyramid of CSR was described by Carroll in 1991 [3]. This pyramid is a guideline that explain how and why a company should have a CSR strategy. The first level of the pyramid is economic responsibility because the first purpose of a company is to make profit especially in order to be able to contribute to the three other levels [3].

The second level is a company should have a legal responsibility because there are laws and regulations that a company needs to respect [3]. This level contributes to the third one that is ethical responsibility. Indeed, a company should be ethical not only for employees but also for consumers that will be more friendly with a company that promote diversity and inclusion and implement sustainable practices.

The last level concern philanthropic responsibility where a company should contribute to society to give back what was used to make profit [3]. Indeed, a company can have a huge environmental impact depending on its activities. It's the trickiest level because a company should have philanthropic engagement without doing greenwashing.

The triple bottom line is a business concept of Elkington (1994) that allow a company to take into account not only economic performance (profit) but also environmental stewardship (planet) and social responsibility (people) [4]. This theory has several advantages like resilience, public relations and legitimacy but also disadvantages as accountability and capitalist slant.

IV. How to evaluate CSR strategies?

For a company isn't enough to implement CSR strategies but it's necessary to evaluate the positive and negative effect of this strategy. To do so, it's possible to use environmental, social and governance metrics (ESG; [5]) that will help a company to measure her impact in a scientific way by using several performance indicators :

- Environmental KPI like:

- Greenhouse gases (GHGs) measurement in level of CO_2, CH_4, N_2O
- Air pollution by gas and particle monitoring
- Energy consumption for electricity and heating generally in KWh
- Water consumption in liters or cubic meters
- Waste output in kg or tons
- Nature usage that measures the land use or loss and resource depletion

Social KPI like:

- Comparative living wages by measuring the average wage in relation to local cost of living
- Diversity, equity and inclusion percentage
- Gender pay gap by quantifying the ratio of what men earn compared to women for the same work
- Employee engagement by measuring employee net promoter score or employee satisfaction index
- Reskilling and training by quantifying the amount invested in training
- Health and safety by recording the number of incidents

Governance KPI like:

- Executive's pay ratio by comparing the executive compensation and the average employee compensation
- Quality of governing body by measuring the diversity ratio of the executive board
- Ethics and anti-corruption policy by implementing an anti-corruption policy
- Tax paid by measuring the amount of tax paid
- Ecosystem ESG by quantifying the key ESG reporting metrics of vendors, suppliers and partners

V. CSR certification

There is two majors CSR certification:

- The ISO 26000 [6] that encourage compagnies to maximize its contribution to sustainable development by using an integrated CSR framework for thinking and acting and by involving a wide variety of stakeholders. This international standard is divided into seven key principles:

- Accountability
- Transparency
- Ethical behavior
- Respect for stakeholder interests
- Respect for the rule of law
- Respect for the international norms of behavior
- Respect for human rights

The B-corporation certification [7] that is an assessment that evaluate companies on social sustainability and environmental performance. To get this certification, a company need to complete an online assessment and earn a minimum score of 80 out of 200 points. This assessment measures the positive impact of the company on its

gouvernance, workers, community and environment. Then a process of verification and transparency will allow a company to become a B-corporation.

VI. Green skills and new jobs

Here there is a non-exhaustive list of green skills that are required for a CSR manager or other green jobs. Indeed, nowadays a lot of non-green jobs required green skills as you can see in this scheme [8].

VII. Conclusion

CSR is evolving very fast and new regulations encourage companies to develop green transition technologies and social responsibility.

Now that you have a bit of knowledge on this field, will you look for new job opportunities in order to preserve the environment and human right?

VIDEO PRESENTATION 2

Link: video presentation 2

READING 2

I. Introduction

Why higher education should take part of sustainable development? How to implement sustainable development in higher education and on campuses? What recognition for a green university?

All these questions will find an answer in this module on Green Universities.

II. Higher education and SDGs

Higher education has a key role in the education of future generations that will play a positive role in green transition. Indeed, Higher education contributes to different United Nations Sustainable Development Goals (SDGs, [9]) and especially:

- Research center since it contributes to innovation and transdisciplinary research that is the purpose of Goal 9

- Education increase knowledge in sustainable development and contribute to green professional skills like the objectives of Goal 4

- Management and governance should implement green practices in campuses like promotion of fair trade (SDG1), gardening in campus (SDG2), no smoking policy (SD3), support marginalized groups in education (SDG4), reduce salaries differences between genders (SDG5), reduce management practices that affect water pollution (SDG6), invest in renewable energies (SDG7), create an environment favorable to develop ideas (SDG8), invest in environmental friendly materials (SDG9), promote a equal opportunities policy (SDG10), establish an ecological campus (SDG11), reduce water energy consumption (SDG12), create incentives for public transport use (SDG13), reduce the waste water production (SDG14), increase green area coverage in campus

(SDG15), involve all the actors in University decision (SDG16) and promote internal and external cooperation (SDG17)

- Leadership will promote dialogue between sectors and contribute to developing advocacy policies towards SDGs as Goal 16

III. How to implement green practices in campuses

It's possible to use CSR strategies in Higher education like the triple bottom line [4]. Indeed, a university has to take into account not only economic performance (profit) but also environmental stewardship (planet) and social responsibility (people) [4]. For more information, see module III Topic 2 part 1.

It also possible to follow the U-GREEN guidelines [10] that will cover all SDGs in three areas:

- Infrastructure & resources

- Administrative management, Teaching & Learning

- Community engagement & awareness

For more information, see Module IV Topic 1 part 1.

IV. Some examples of Green Universities

This part will present you three examples of green universities around the world [11].

- University of New South Wales, in Australia decided to implement several actions in order to improve indoor environmental quality, water conservation and reduce energy consumption and carbon emissions. Among these actions, University decided to purchase furniture with low Volatile Organic Compounds and Formaldehyde, the air conditioning load is reduced by linking the air conditioning controls to motion sensors and carbon dioxide sensors in all spaces and collect rainwater in storage tank that will be treated and returned to building as non-potable water to be use in toilet flushing and laboratories.

- The Autonomous University of Barcelona, in Spain organize every year a welcome party for new and old members. This event gathers about 20,000 people where students set up stalls to sell food and drinks that generated a lot of waste, nearly 0,5 kg per person. For these reasons, University decided to use only reusable cups that participant can keep during time, this help to avoid 50,000 single use plastic cups in 2013's party. The collection of waste is done by specific bins and the most sustainable stall is awarded.

- Chalmers University of Technology Gothenburg, in Sweden wanted to improve the knowledge about sustainability and the communication about the commitment of management team. To achieve this purpose, an Environmental Coordinator was hired to implement an Environmental Management System (EMS) and the President decided to launch 5 weeks of courses dedicated to sustainable development and environment

for all students in all bachelor programs. In the same time, 5 knowledge clusters were launched: Urban Future, Marine Environment and Marine Sector, Green Chemistry and Bio-based Products, Sustainable Mobility and Life Science.

V. Green ranking

There is two majors Green Ranking for Universities:

- The Times Higher Education publish every year the University Impact Rankings that use SDG as a reference. The 2024 ranking is:

- Western Sydney University with a total of 99,7 points with the highest score for SDG 5, 15, 12, 17
- University of Manchester with a total of 98,5 points with the highest score for SDG 11, 15, 12, 17
- University of Tasmania with a total of 98,5 points with the highest score for SDG 13, 15, 14, 17
- Aalborg University with a total of 98,0 points with the highest score for SDG 4, 14, 10, 17
- RMIT University with a total of 97,7 points with the highest score for SDG 10, 6, 8, 17

- The QS World University Rankings that use ESG as a reference. The 2024 ranking is:

- University of Toronto with an environmental rank n°2, social rank n°4 and governance rank n°15
- University of California Berkeley with an environmental rank n°1, social rank n°6 and governance rank n°74
- The University of Manchester with an environmental rank n°7, social rank n°12 and governance rank n°5
- University of British Columbia with an environmental rank n°10, social rank n°3 and governance rank n°17
- The University of Auckland with an environmental rank n°4, social rank n°39 and governance rank n°41

VI. Conclusions

University needs to implement green strategies since it's the best way to improve knowledge about sustainable development and to inspire vocations.

Now that you have a bit of knowledge on this field, will you choose a green university for your academic studies?

TEST

Questions	**Correct answer***

1. Corporate Social Responsability was defined in :

   A. 1940

   B. 1953

   C. 1960

   D. 1973

2. How many levels do you have in the pyramid of CSR?

   A. 2

   B. 3

   C. 4

   D. 5

3. The three bottom line is :

   A. Economic, social and environment

   B. Profit, people and planet

   C. Performance, profit and policy

4. Which ISO certification is use to evaluate CSR strategy?

   A. ISO 9001

   B. ISO 14001

   C. ISO 26000

5. B-corporation is based on :

   A. Self-assessment

   B. No evaluation

   C. ISO certification

6. Which SDG is related to education?

   A. SDG2

   B. SDG4

   C. SDG9

   D. SDG17

7. How many area are defined by the U-GREEN label?

   A. 1

   B. 2

   C. 3

D. 4

8. Which green university organizes a green welcome party?

A. University of New South Wales

B. The Autonomous University of Barcelona

C. Chalmers University of Technology Gothenburg

9. Which green ranking is using SDG?

A. Times Higher Education

B. QS World ranking

10. Which green ranking is using ESG?

A. Times Higher Education

B. QS World ranking

*Correct answers: 1B, 2C, 3B, 4C, 5A, 6B, 7C, 8B, 9A, 10B

ADDITIONAL MATERIALS

1.	https://online.hbs.edu/blog/post/types-of-corporate-social-responsibility	Corporate Social Responsabilty definition
2.	https://fourweekmba.com	Key concepts
3.	https://melissabaldridge.medium.com/the-evolution-of-esg-four-versions-of-environmental-social-governance-performance-in-business-aadae9fb0243	Evolution of ESG
4.	https://www.bcorporation.net/en-us/programs-and-tools/b-impact-assessment/	B Impact Assessment
5.	https://economicgraph.linkedin.com/research/global-green-skills-report	Green jobs
6.	https://www.timeshighereducation.com/impactrankings	Times Higher Education
7.	https://www.topuniversities.com/sustainability-rankings	QS World University

REFERENCES

[1] Latapí Agudelo, M.A., Jóhannsdóttir, L. & Davídsdóttir, B. A literature review of the history and evolution of corporate social responsibility. *Int J Corporate Soc Responsibility* **4**, 1 (2019). https://doi.org/10.1186/s40991-018-0039-y

[2] European Union Directive 2022/2464 of 14 december 2022. https://eur-lex.europa.eu/eli/dir/2022/2464/oj

[3] Carroll, A.B. Carroll's pyramid of CSR : taking another look. *Int J Corporate Soc Responsibility* **1**, 3 (2016). https://doi.org/10.1186/s40991-016-0004-6

[4] Elkington, J. (1998). Partnerships from cannibals with forks: The triple bottom line of 21st-century business. *Environmental Quality Management*, **8**(1), 37–51. https://doi.org/10.1002/tqem.3310080106

[5] Souza Barbosa, A., da Silva, M.C.B.C., da Silva, L.B. et al. Integration of Environmental, Social, and Governance (ESG) criteria: their impacts on corporate sustainability performance. *Humanit Soc Sci Commun* **10**, 410 (2023). https://doi.org/10.1057/s41599-023-01919-0

[6] ISO 26000 standard https://www.iso.org/iso-26000-social-responsibility.html

[7] B-corporation certification https://bcorporation.eu/

[8] Global green skills report 2022 and 2023

a. 2022 https://linkedin.github.io/global-green-report-2022/

b. 2023 https://economicgraph.linkedin.com/research/global-green-skills-report

[9] ISO 8586:2012. Sensory analysis — General guidelines for the selection, training and monitoring of selected assessors and expert sensory assessors. Available online: https://www.iso.org/standard/45352.html (accessed on 25 October 2023).

[10] Internet, 2023a. Retail Industry Challenges and the Tech Solutions to Conquer Them. Available online: https://www.xaasjournal.com/2020-retail-industry-challenges-andthe-tech-solutions-to-conquer-them/>. (accessed on 2 January 2023).

[11] Žalėnienė, I., & Pereira, P. (2021). Higher education for sustainability: A global perspective. *Geography and Sustainability*, **2**(2), 99-106. https://doi.org/10.1016/j.geosus.2021.05.001

[12] U-GREEN guidelines https://www2.ual.es/u-green/wp-content/uploads/2023/06/U-GREEN-GUIDELINES-V2.pdf

[13] Greening universities toolkit V2.0, UN Environment Programme https://www.unep.org/resources/toolkits-manuals-and-guides/greening-universities-toolkit-v20

GLOSSARY

Abbreviation	Description
SDG	ang. SUSTAINABLE DEVELOPMENT GOALS

CONCLUSIONS

Environmental education is pivotal in shaping sustainable careers and addressing global environmental challenges. This comprehensive approach not only imparts essential knowledge about the environment but also fosters a mindset shift towards sustainability. By raising awareness and inspiring commitment, environmental education equips professionals with the skills and dedication needed to integrate sustainable practices into their careers.

Professionals well-versed in environmental issues are better prepared to incorporate sustainability into their daily activities. This education endows them with technical skills essential for success in sustainability-oriented fields such as environmental management, renewable energy, and nature conservation. These capabilities are increasingly valued by employers, making environmental education a key factor in career development.

Moreover, environmental education empowers professionals to contribute significantly to global agendas by addressing issues like climate change, biodiversity loss, pollution, and resource scarcity. It enables them to devise and implement innovative solutions, promoting sustainable practices within organizations, communities, and society at large. This positive influence is crucial for achieving global sustainable development goals.

Continuing environmental education is vital for adapting to rapid environmental and technological changes. It fosters innovation and creativity, driving the development of sustainable solutions adaptable to future needs. In summary, environmental education has a transformative impact, preparing professionals to lead the transition towards a greener and more equitable future. Investing in this form of education is imperative for building a sustainable world.

3.5. Module IV

GREEN TRANSFORMATION AT WORK AND BEYOND

GENERAL INFORMATION ABOUT MICROTRAINING

MICROTRAINING OVERVIEW:

Welcome to Module III on “Skills for Emerging Labour Market Needs Green Jobs and New Professional Profiles”!

In this module, we will explore how new curricula are shaping the future of teaching and practice in sustainability. You'll learn how these innovative approaches combine academic theory with practical application in order to tackle environmental, social and economic challenges.

We'll delve into emerging areas such as natural resource management, renewable energies, circular economy and environmental policies, and understand how these disciplines help solve real problems in our daily lives. We will also highlight essential skills for green professionals, such as critical thinking, problem solving, innovation and interdisciplinary collaboration. These skills are central to leading in the field of sustainability.

Finally, we will explore different educational approaches to promoting sustainability, from formal education to community awareness campaigns.

This course is a valuable opportunity to acquire the knowledge and skills needed to actively contribute to a more sustainable future.

Join us on this journey of learning and transformation! Microtraining overview:

Welcome to the course "Green Transformation at Work and Beyond"! This program is designed to provide a comprehensive understanding of key strategies and initiatives for promoting sustainability in various contexts.

Topic 1: Sustainability Action Plan

In this topic, we will explore the concept of Sustainability Action Plans and examine examples from Europe and outside Europe for inspiration. By studying successful models, participants will gain insights into structuring effective plans tailored to specific environmental challenges.

Topic 2: U-Green Label and Green Transformation Measures

This topic focuses on transformative measures such as the U-Green label and the UI GreenMetric framework. Participants will not only learn about these frameworks but also engage in a detailed analysis of our project and other global initiatives like GreenMetric from Indonesia. Through comparative studies, participants will

understand the impact of these measures on driving ecological transformations and explore practical applications in real-world scenarios.

MICROTRAINING SPECIFICS

- SETTING: On-line
- DURATION (HOURS): 2-3 h
- MATERIALS: 1 microtraining contains **2 topics (55-75 min each)**
- TOPICS:
- Sustainability Action Plan
- U-Green label and other green transformation measures
- LANGUAGE: English
- INDIVIDUAL WORK

WHAT WILL YOU GAIN?

In this training you will:

- Gain insights into global Sustainability Action Plans, understanding their sources, structures, and key components.
- Become familiar with transformative measures like the U-Green label and the UI GreenMetric framework, exploring their impact on promoting ecological sustainability.
- Analyse case studies from international initiatives such as GreenMetric from Indonesia, extracting valuable lessons and strategies for driving meaningful ecological transformations.
- Develop a comprehensive understanding of key sustainability frameworks and their practical applications in diverse contexts.
- Explore innovative ideas and best practices from successful sustainability models worldwide, equipping yourself with strategies for implementing green initiatives effectively.
- Gain critical insights into assessing and measuring the impact of ecological transformations, contributing to a more sustainable future.

MICROTRAINING INTRODUCTORY VIDEO

Link: introductory video

TOPIC 1: Sustainability Action Plan

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STRUCTURE OF THE TOPIC 1:

1. Introduction (5 min)
2. Video presentation 1 (15min)
3. Reading 1 (7 min)
4. Video presentation 2 (15 min)
5. Reading 2 (7min)
6. Test (5-10 min)
7. Additional materials (20-30 min)
8. References
9. Glossary

INTRODUCTION

A **Sustainability Action Plan** is a strategic document designed to outline specific steps and initiatives aimed at promoting sustainable practices across various domains. At its core, this plan serves as a roadmap for organizations, communities, or governments to address environmental, social, and economic challenges while fostering long-term sustainability and resilience.

Initially, a sustainability action plan involves a comprehensive assessment of current conditions and challenges, including an analysis of environmental impacts, social dynamics, and economic factors. Through stakeholder engagement and consultation, key priorities and objectives are identified, aligning with the Sustainable Development Goals (SDGs).

Subsequently, the action plan outlines a series of targeted strategies and initiatives tailored to achieve these objectives. These may encompass areas such as energy efficiency, renewable energy adoption, waste reduction, biodiversity conservation, social equity promotion, and economic development that prioritizes sustainability.

Therefore, a sustainability action plan emphasizes integration and collaboration across sectors and stakeholders. It recognizes the interconnectedness of environmental,

social, and economic systems, searching for holistic solutions that address root causes and promote synergies between sustainability dimensions.

Monitoring, evaluation, and adaptation mechanisms are integral components of a sustainability action plan, allowing for ongoing refinement and improvement based on feedback and evolving circumstances. This iterative process ensures that the plan remains dynamic and responsive to emerging challenges and opportunities.

Ultimately, a sustainability action plan represents a commitment to responsible stewardship of resources, both for present and future generations. By embedding sustainability principles into decision-making processes and operational practices, it seeks to create a more equitable, resilient, and environmentally conscious society.

VIDEO PRESENTATION 1

Link: video presentation 1

READING 1: Networks for sustainability action: other examples (C40 Cities)

Networks for sustainability action, like the *Global and the EU Covenant of Mayors*, are coalitions of organizations, institutions, and individuals committed to promoting sustainable practices and policies to address environmental, social, and economic challenges. These networks serve ad collaborative platform where participants can share knowledge, resources, and experiences to develop and implement effective solutions. Networks for sustainability action can be local, national, or international in scope and may be organized by governments, non-governmental organizations, academic institutions, the private sector, or citizen groups. Through their shared commitment to a more sustainable future, these networks contribute to raising awareness, catalysing concrete actions, and promoting systemic change towards a more equitable and environmentally responsible society.

Most of networks for sustainability action requires the developing of a Climate Action Plan or a Sustainable Action Plan, operating on a wide range of issues, including climate change, biodiversity conservation, renewable energy, waste management, sustainable mobility, and social justice.

For example, ***C40 Cities Climate Leadership Group***, is a network of global cities actively engaged in the fight against climate change. Founded in 2005, the organization brings together political leaders from cities around the world to share knowledge, experiences, and resources to address common climate challenges and promote concrete actions to reduce greenhouse gas emissions and increase resilience. The member cities of C40 represent some of the largest and most influential urban areas in the world, including metropolises like London, New York, Tokyo, and Rio de Janeiro. Key initiatives of C40 include programs addressing crucial sectors such as energy, transportation, buildings, and climate adaptation. These initiatives often involve partnerships with national governments, businesses, and civil society organizations to maximize the impact of actions taken.

Other examples of networks for sustainability actions are *Climate Alliance, Energy Cities, NetZeroCities*, which are also founders and long-term supporters of the *Covenant of Mayors.* You can find the links to the websites for further information, in the specific paragraph "Additional materials", below.

In an increasingly interconnected and interdependent world, networks for sustainability action play a crucial role in promoting collaboration and coordination on a global scale to address the most urgent challenges of our time and create a sustainable future for generations to come.

VIDEO PRESENTATION 2

Link: video presentation 2

READING 2 Diverse Global Initiatives: Sustainability Plans Beyond Europe

In recent years, sustainability plans have gained significant traction worldwide as countries and regions grapple with the challenges posed by climate change and environmental degradation. While Europe has been proactive in implementing ambitious sustainability initiatives, several notable examples from outside Europe showcase innovative approaches to sustainability planning on par with global standards.

One compelling case study comes from Costa Rica, a Central American nation celebrated for its commitment to environmental conservation. Costa Rica has pioneered the concept of payment for ecosystem services (PES), where landowners are financially incentivized to preserve natural habitats. This approach has led to the protection of vast swathes of forests and biodiversity-rich areas, demonstrating the effectiveness of economic incentives in promoting sustainability.

Moving to Asia, Bhutan stands out for its unique Gross National Happiness (GNH) index, which prioritizes holistic well-being over purely economic metrics. This holistic approach extends to environmental sustainability, with policies aimed at preserving Bhutan's pristine landscapes and promoting renewable energy sources. Bhutan's emphasis on happiness and environmental stewardship serves as a compelling model for sustainable development beyond GDP-focused paradigms.

In Africa, Rwanda has emerged as a leader in green innovation, particularly in the realm of renewable energy. The country has made significant investments in solar energy infrastructure, aiming to provide clean and affordable electricity to its population while reducing reliance on fossil fuels. Rwanda's ambitious renewable energy agenda demonstrates how African nations can leapfrog traditional development pathways and embrace sustainability as a core pillar of growth.

Further south, in Latin America, Colombia's efforts to protect its biodiversity-rich ecosystems have garnered international acclaim. Through initiatives such as the Amazon Vision program, Colombia is working to conserve its rainforests and combat

deforestation, recognizing the vital role of ecosystems in mitigating climate change and supporting local communities.

In Oceania, New Zealand has implemented comprehensive sustainability plans focused on marine conservation. Through the establishment of marine protected areas and the promotion of sustainable fishing practices, New Zealand aims to preserve the biological richness of its oceans and ensure the sustainability of fish resources for future generations.

Meanwhile, in the United States, California has adopted ambitious sustainability plans to address climate change and promote the transition to a low-carbon economy. Key initiatives include greenhouse gas reduction targets, incentives for electric vehicle adoption, and stringent environmental regulations for businesses.

These examples highlight the diversity of approaches and solutions adopted by countries worldwide to address sustainability challenges through concrete sustainability plans. Their experiences offer valuable lessons for the entire world as we strive to build a more sustainable and resilient future.

TEST

Questions	**Correct answer***

1. What is the main purpose of a Sustainability Action Plan?
    a) To increase business profits
    b) To outline specific steps and initiatives for promoting sustainable practices
    c) To reduce taxes for governments
    d) To promote social media engagement
2. Which of the following is a key component of a Sustainability Action Plan?
    a) Stakeholder disengagement
    b) Ignoring economic factors
    c) Monitoring, evaluation, and adaptation mechanisms
    d) Focusing solely on environmental impacts
3. Which network is an example of a global collaboration to address climate change?
    a) Climate Alliance
    b) C40 Cities Climate Leadership Group
    c) Amazon Vision Program
    d) Sustainable Development Goals (SDGs)
4. What approach has Costa Rica pioneered in promoting sustainability?
    a) Gross National Happiness index
    b) Payment for ecosystem services (PES)

c) Solar energy infrastructure investments

d) Marine conservation policies

5. Which country is known for its green innovation in renewable energy, particularly solar energy?

a) Costa Rica

b) Bhutan

c) Rwanda

d) New Zealand

6. Which country's sustainability efforts focus on the concept of Gross National Happiness (GNH)?

a) Costa Rica

b) Rwanda

c) Bhutan

d) New Zealand

7. Which of the following is a key initiative in California's sustainability plan?

a) Promoting sustainable fishing practices

b) Developing biodiversity conservation programs

c) Incentives for electric vehicle adoption

d) Payment for forest preservation

8. What approach is highlighted in New Zealand's sustainability plans?

a) Payment for ecosystem services

b) Gross National Happiness index

c) Marine conservation and sustainable fishing practices

d) Transition to a low-carbon economy through electric vehicles

9. Which of the following best describes the role of universities in sustainability networks like the SDSN?

a) To compete for sustainability rankings

b) To foster interdisciplinary research and education on sustainability challenges

c) To provide financial support for climate initiatives

d) To focus exclusively on biodiversity conservation

10. Which sustainability action is Colombia particularly known for?

a) Protecting marine ecosystems

b) Reducing reliance on fossil fuels

c) Preserving its rainforests through the Amazon Vision program

d) Prioritizing happiness over GDP growth

*Corrects answers: 1B, 2C, 3B, 4B, 5C, 6C, 7C, 8C, 9B, 10C

ADDITIONAL MATERIALS

1. The Covenant of Mayors for Climate & Energy. https://eu-mayors.ec.europa.eu/en/about
2. Climate Action Plans in Washington State: https://mrsc.org/explore-topics/environment/sustainability/climate-action-plans#:~:text=CAPs%20typically%20establish%20GHG%2Dreduction,agriculture%2C%20and%20municipal%20operations).
3. Global Covenant of Mayors for Climate & Energy: https://www.globalcovenantofmayors.org/
4. Climate Alliance: https://www.climatealliance.org/about-us.html
5. JRC – JOINT RESEARCH CENTRE provides guidelines to develop the SECAP: https://publications.jrc.ec.europa.eu/repository/handle/JRC112986
6. The Covenant of Mayors organization provides the Reporting Guidelines with technical materials: https://eu-mayors.ec.europa.eu/en/resources/reporting
   Energy Cities: https://energy-cities.eu/vision-mission/
7. Net Zero Cities: https://netzerocities.eu/

   NetZeroCities is part of the Horizon 2020 Research and Innovation Programme in support of European Union's Green Deal. NetZeroCities has been designed to help cities overcome the current structural, institutional and cultural barriers they face in order to achieve climate neutrality by 2030. NetZeroCities supports the EU's Mission of "100 Climate-Neutral and Smart Cities by 2030" newly launched as part of the Horizon Europe programme. The project works as a service-oriented platform supported by world-class practitioners. It helps European cities by providing them with the support and solutions they need to achieve their Net Zero goal in a socially inclusive way. New and existing tools, resources and expertise are developed and promoted into a one-stop platform accessible to all cities through an online portal. Dedicated services are designed to support cities that are part of the EU's Mission "100 Climate-Neutral and Smart Cities by 2030". In addition, NetZeroCities supports a series of Pilots to help drive rapid learning about how to achieve climate neutrality at city scale and will run a Twinning programme to enable peer-learning.

REFERENCES

1. Andreanidou, K., Bertoldi, P., Dallemand, J., Follador, M., Glancy, R., Hernandez Gonzalez, Y., Iancu, A., Kilkis, S., Kona, A., Labanca, N., Lah, O., Marinho Ferreira Barbosa, P., Melica, G., Monni, S., Muntean, M., Palermo, V., Ribeiro Serrenho, T., Rivas Calvete, S., Zancanella, P. and Zangheri, P., Guidebook `How to develop a Sustainable Energy and Climate Action Plan (SECAP)`, Bertoldi, P. editor(s), EUR 29412 EN, Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-96847-1, doi:10.2760/223399, JRC112986.
2. Pablo-Romero, M. D. P., Sánchez-Braza, A., & Manuel González-Limón, J. (2015). Covenant of mayors: Reasons for being an environmentally and energy friendly municipality. Review of Policy Research, 32(5), 576-599.

3. Santopietro, L., & Scorza, F. (2021). The Italian experience of the covenant of mayors: a territorial evaluation. Sustainability, 13(3), 1289.
4. Islam, M. S., Liu, G., Xu, D., Chen, Y., Li, H., & Chen, C. (2023). University-campus-based zero-carbon action plans for accelerating the zero-carbon city transition. Sustainability, 15(18), 13504.
5. Urrutia-Azcona, K., Sorensen, S., Molina-Costa, P., & Flores-Abascal, I. (2019). Smart zero carbon city: Key factors towards smart urban decarbonisation. Dyna, 94(6), 676-683.
6. Deetjen, T. A., Conger, J. P., Leibowicz, B. D., & Webber, M. E. (2018). Review of climate action plans in 29 major US cities: Comparing current policies to research recommendations. Sustainable Cities and Society, 41, 711-727.
7. Bresciani, S., Rizzo, F., & Mureddu, F. (2024). Social Innovation and Co-design for Climate Neutrality: The NetZeroCities Project. In Assessment Framework for People-Centred Solutions to Carbon Neutrality: A Comprehensive List of Case Studies and Social Innovation Indicators at Urban Level (pp. 1-19). Cham: Springer Nature Switzerland.

GLOSSARY

Abbreviation	Decription
SDG	eng. SUSTAINABLE DEVELOPMENT GOALS
CoM	eng. Covenant of Mayors
SECAP	eng. Sustainable Energy and Climate Action Plan
JRC	eng. Joint Research Centre
GHG	eng. Greenhouse Gases
PES	Eng. payment for ecosystem services
GNH	Eng. Gross National Happiness
GDP	Eng. Gross Domestic Product
EU	Eng. European Union

TOPIC 2: U-GREEN LABEL AND OTHER GREEN TRANSFORMATION MEASURES

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STRUCTURE OF THE TOPIC 1:

1. Introduction (5 min)
2. Video presentation 1 (15 min)
3. Reading 1: The climate crisis (7 min)
4. Video presentation 2 (10 min)
5. Reading 2: EU's response: the European Green Deal (7min)
6. Test (5-10 min)
7. Additional materials (20-30 min)
8. References
9. Glossary

INTRODUCTION

The U-Green label and the UI GreenMetric ranking system are pivotal tools in assessing and promoting environmental sustainability initiatives worldwide. The U-Green label is a recognition awarded to organizations that demonstrate a commitment to green practices, energy efficiency, and sustainable development across various sectors. It serves as a beacon for consumers and stakeholders seeking environmentally responsible choices, fostering a culture of sustainability within higher education institution

On the other hand, the UI GreenMetric ranking system evaluates and ranks universities globally based on their efforts and achievements in promoting sustainability and addressing environmental challenges. Developed by the University of Indonesia, this ranking system considers parameters such as infrastructure, energy efficiency, waste management, and education programs related to sustainability. Universities that excel in these areas are recognized and celebrated for their contributions to a greener future.

Our focus in this topic will be to delve into the construction and frameworks behind the U-Green label and the UI GreenMetric ranking system. Rather than analysing specific case studies, we will explore the methodologies and criteria used to assess environmental sustainability within these frameworks. By understanding the foundational principles and key indicators that contribute to these assessments, participants will gain insights into the holistic approach required for promoting and measuring ecological transformations. Join us as we unravel the intricacies of these influential tools, paving the way for a deeper understanding of sustainable practices and their impact on global initiatives.

VIDEO PRESENTATION 1: U-Green Label

Link: video presentation 1

READING 1: The U-Green project

The U-Green project - University cooperation for promoting the GREEN transition and sustainable practices in education and training - is an Erasmus Plus project funded by the European Commission and implemented by a consortium of nine European partners: University of Almeria, Warsaw University of Life Sciences, University of Modena and Reggio Emilia, University College of the Province of Liège, Paris Sup'Biotech, Agricultural University of Iceland, Agricultural University - Plovdiv, Polytechnic University of Coimbra, and Incoma. The project aims to lead the transformative agenda towards a resource-efficient, circular, digitized, and climate-neutral economy by 2050, as envisioned by the European Union.

U-Green seeks to improve the readiness of Education and Training institutions to tackle the green transition and act as catalysts in promoting behavioural change and green skills among a new generation of committed European citizens.

Specifically, U-Green aims to:

1. Foster Sustainable Infrastructures by providing standards on energy efficiency, water consumption, sustainable food, recycling, digitalization practices, and community engagement.
2. Empower Institutions to act as catalysts for behavioural change supporting the green transition among students and communities.
3. Embed Sustainability in Curricula to promote green skills among a new generation of committed European citizens.
4. Raise Awareness among teaching and non-teaching staff on green and sustainable alternatives and strategies.
5. Strengthen Cooperation among Education and Training institutions to facilitate the exchange of best practices and experiences.
6. Reinforce the Role of HEIs in generating knowledge and skills to help society address climate, environmental, and sustainability challenges.

Through a common framework, U-Green will assess and update green and sustainability practices, build capacities among experts, and promote knowledge transfer via a Virtual Knowledge Hub. This collaborative effort reflects the commitment to realizing a greener, more sustainable Europe.

VIDEO PRESENTATION 2: UI Green metric

Link: video presentation 2

READING 2: Sustainability in higher education

Sustainability rankings play a crucial role in evaluating and promoting environmental initiatives across various sectors, including universities and academic institutions. These rankings assess factors such as environmental impact, resource efficiency,

community engagement, and sustainable practices, providing valuable insights into organizational sustainability efforts. Notable sustainability rankings include the GreenMetric World University Ranking, which evaluates universities worldwide based on their commitment to sustainable practices such as waste management, energy use, and green initiatives.

Moreover, universities often collaborate within networks dedicated to sustainability, fostering knowledge sharing and collaborative efforts towards common environmental goals. Networks such as the Sustainable Development Solutions Network (SDSN) bring together universities, research institutions, and organizations globally to address sustainability challenges outlined in the United Nations Sustainable Development Goals (SDGs). These networks facilitate interdisciplinary research, policy advocacy, and education initiatives aimed at achieving sustainable development objectives on a global scale.

Within Europe, various sustainability networks among universities further amplify collaborative efforts for environmental stewardship. These networks, such as the European University Association's (EUA) Sustainability Initiative, bring together universities across Europe to share best practices, develop joint projects, and advocate for sustainable policies at the regional and national levels. By leveraging collective expertise and resources, these networks drive innovation, research, and education in sustainability, contributing significantly to a greener and more sustainable future for academia and society at large.

As universities continue to prioritize sustainability in their operations and curricula, collaboration through networks and participation in sustainability rankings serve as essential drivers for progress, fostering a culture of environmental responsibility and promoting impactful sustainability initiatives.

TEST

Questions	**Correct answer***

1. What does the U-Green label represent?
    a) A ranking system for global universities
    b) A recognition for organizations committed to green practices and energy efficiency
    c) A government initiative for environmental policies
    d) A student-led environmental movement

2. Which institution developed the UI GreenMetric ranking system?
    a) University of Almeria
    b) Warsaw University of Life Sciences
    c) University of Indonesia
    d) Polytechnic University of Coimbra

3. What is one of the primary goals of the U-Green Erasmus Plus project?

a) Promote economic growth through industrialization

b) Foster sustainable infrastructures and behavioral change among students

c) Expand fossil fuel usage across universities

d) Reduce digitalization in education institutions

4. Which ranking assesses universities based on their sustainability efforts like waste management and energy use?

a) GreenMetric World University Ranking

b) Sustainable Development Solutions Network (SDSN)

c) European University Association (EUA)

d) U-Green label

5. What role do networks like the Sustainable Development Solutions Network (SDSN) play in sustainability?

a) They focus exclusively on energy efficiency in universities

b) They facilitate interdisciplinary research and collaboration towards achieving the United Nations SDGs

c) They assess universities based on their community engagement only

d) They rank universities according to recycling practices

6. Which of the following is a key indicator in the UI GreenMetric ranking system?

a) Number of enrolled students

b) Infrastructure, energy efficiency, and waste management

c) University sports achievements

d) International collaborations

7. Which of the following is NOT a goal of the U-Green Erasmus Plus project?

a) Improve readiness of education institutions for the green transition

b) Promote fossil fuel use in education

c) Strengthen cooperation among educational institutions

d) Raise awareness on green and sustainable strategies among staff

8. Which of the following best describes the role of the Virtual Knowledge Hub in the U-Green project?

a) A platform for online student registrations

b) A space for knowledge transfer and capacity building on green practices

c) A library for academic publications on climate change

d) A tool for ranking universities based on research output

9. What is the primary focus of networks like the European University Association's Sustainability Initiative (EUA)?

a) To foster collaboration on sustainability projects across universities

b) To increase enrollment rates across European universities

c) To develop student exchange programs

d) To establish international sports events

10. What distinguishes the C40 Cities Climate Leadership Group from other sustainability networks?

a) Its focus on economic development

b) Its emphasis on renewable energy and biodiversity conservation

c) Its network of global cities focused on reducing greenhouse gas emissions

d) Its ranking of universities based on sustainable practices

*Correct answers: 1B, 2C, 3B, 4A, 5C, 6B, 7B, 8B, 9A, 10C

ADDITIONAL MATERIALS

1.	https://www.unsdsn.org/	The UN Sustainable Development Solutions Network (SDSN) works to mobilize the world's universities, think tanks, and national laboratories for action on the Sustainable Development Goals (SDGs) and the Paris Agreement; empower societies through free online education; and translate scientific evidence and ideas into solutions and accountability.
2.	https://unglobalcompact.org/	The United Nations Global Compact is the **world's leading voluntary corporate citizenship initiative**. It is a call to companies everywhere to voluntarily align their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption, and to take actions in support of UN goals, including the Millennium Development Goals.
3.	https://support.qs.com/hc/en-gb/articles/85515032006	QS World University Rankings: Sustainability

	68-QS-Sustainability-Rankings	
4.	https://dashboards.sdgindex.org/rankings	The Sustainable Development Report (formerly the SDG Index & Dashboards) is a global assessment of countries' progress towards achieving the Sustainable Development Goals. It is a complement to the official SDG indicators and the voluntary national reviews.
5.	https://international-sustainable-campus-network.org/	The mission of the ISCN is to provide an international forum to support higher education institutions in the exchange of information, ideas, and best practices for achieving sustainable campus operations and integrating sustainability in research and teaching.
6.	https://greenmetric.ui.ac.id/	UI Green Metric Website
7.	https://www2.ual.es/u-green/	U-GREEN Project website
8.	https://unigreen-alliance.eu/	UNIgreen Alliance. The consortium is the same of U-Green
9.	https://www.usgbc.org/leed	Green Building rating system
10.	https://www.unep.org/explore-topics/education-environment/why-does-education-and-environment-matter/green-university	Definition of Green University network and useful materials

REFERENCES

1. Sachs, J.D., Lafortune, G., Fuller, G., Drumm, E. (2023). Implementing the SDG Stimulus. Sustainable Development Report 2023. Paris: SDSN, Dublin: Dublin University Press, 2023. 10.25546/102924

2. Suwartha, N., & Berawi, M. A. (2019). The role of UI GreenMetric as a global sustainable ranking for Higher Education Institutions. International Journal of Technology, 10(5), 862-865.

3. De la Poza, E., Merello, P., Barberá, A., & Celani, A. (2021). Universities' reporting on SDGs: Using the impact rankings to model and measure their contribution to sustainability. Sustainability, 13(4), 2038.

4. Kyrychenko, K. I., Laznenko, D. O., & Reshetniak, Y. V. (2021). Green university as an element of forming a sustainable public health system.

5. Finlay, J., & Massey, J. (2012). Eco-campus: Applying the ecocity model to develop green university and college campuses. International Journal of Sustainability in Higher Education, 13(2), 150-165.

GLOSSARY

Abbreviation	Description
HEI	eng. Higher Education Institution
PHEI	eng. Part of Higher Education Institution
SDSN	eng. Sustainable Development Solutions Network
SDGs	eng. Sustainable Development Goals

CONCLUSIONS

The "Green Transformation at Work and Beyond" microtraining program provides a comprehensive guide to promoting sustainability. It covers two main topics: the Sustainability Action Plan and the U-Green Label and Green Transformation Measures. The Sustainability Action Plan focuses on creating strategic documents to promote sustainable practices by assessing current conditions, engaging stakeholders, and identifying priorities aligned with the Sustainable Development Goals (SDGs). Emphasis is placed on sectoral integration and continuous improvement through monitoring and evaluation.

The U-Green Label and Green Transformation Measures focus on understanding the U-Green label and the UI GreenMetric framework, analysing global initiatives like Indonesia's GreenMetric to comprehend their impact on ecological transformations. Key benefits include gaining global insights into various sustainability action plans, learning about transformative measures, and extracting strategies from international case studies. Participants will also gain practical applications of sustainability frameworks in different contexts, innovative ideas for effective green initiatives, and skills to measure and contribute to sustainable transformations.

Global examples of sustainability efforts include Costa Rica's ecosystem services payments, Bhutan's Gross National Happiness index, Rwanda's solar energy investments, Colombia's Amazon conservation efforts, New Zealand's marine protection, and California's greenhouse gas reduction and electric vehicle incentives. Networks supporting these efforts include the C40 Cities Climate Leadership Group, Climate Alliance, Energy Cities, and NetZeroCities.

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4. U-GREEN Virtual Knowledge Hub Protocol

The Virtual Knowledge Hub (VKH) has been designed as a dynamic platform that continuously evolves, inviting users to contribute by uploading new resources and enriching its content. To maintain the relevance and quality of these contributions, the U-Green Consortium has established a specific protocol. This ensures that any materials added to the VKH align with the U-Green project's goals.

The process for submitting new content to the VKH is illustrated in Figure 1 below. Once content is submitted, it is reviewed by members of the U-Green Consortium, who assess its relevance to Green Transition topics and ensure that it meets the platform's high quality standards. The evaluation is conducted quarterly by representatives of the U-Green Consortium, in accordance with the guidelines outlined in the Sustainability Plan.

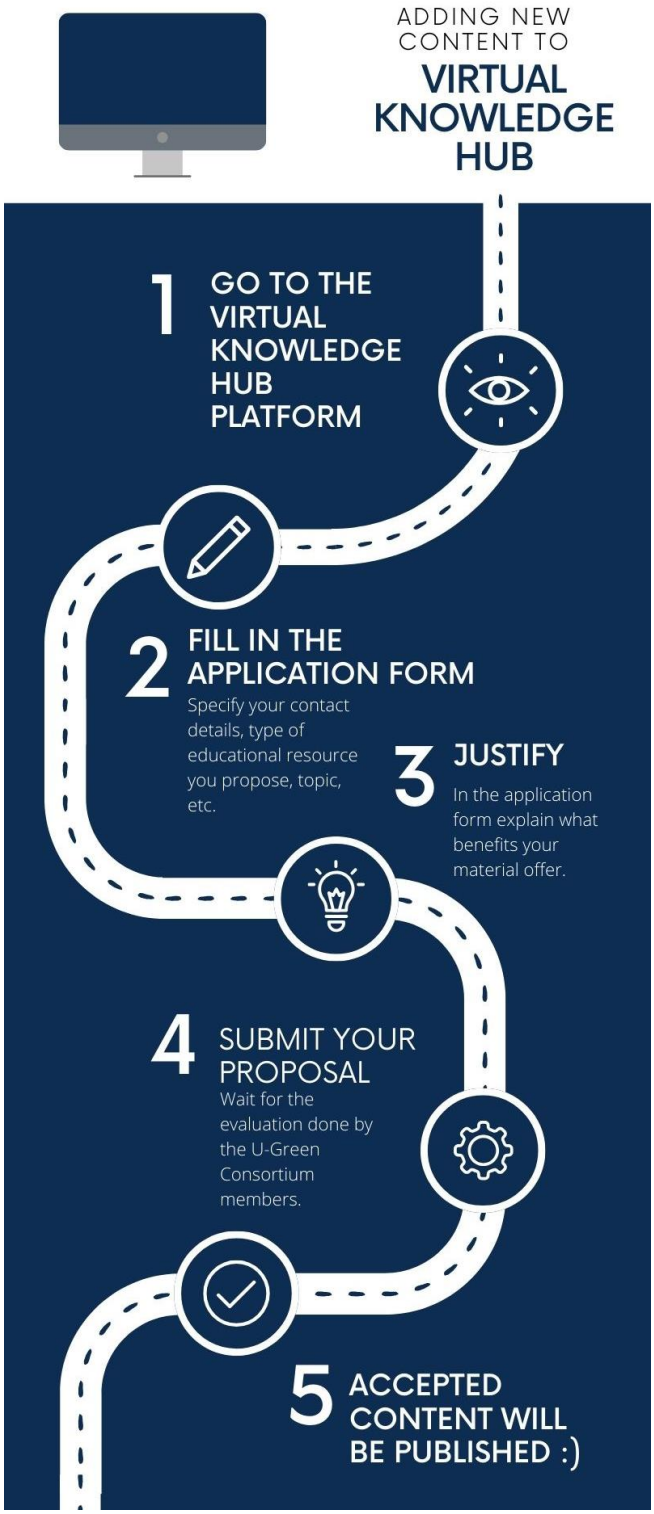

Fig. 1. The flow chart explaining the procedure of adding the new content to the Virtual Knowledge Hub

The platform provides an application form through which users can submit new materials. During the submission process, users are required to specify the type of educational materials being added (e.g., video, lecture, reading, interactive game, etc.) and justify the benefits they offer. Additionally, they must indicate how the submitted content aligns with the SDGs and whether the new materials supplement an existing micro-training course or constitute a standalone course. The application form template is shown in Fig. 2 below.

Contact details:

Please provide your name, e-mail address and affiliation.

Type of proposed educational resource (choose from the list):

- Film/Video
- Lecture
- Podcast
- Reading
- Interactive game
- Presentation
- Paper
- Quiz
- Other:……

Time necessary to complete the tasks:

- 1h
- 2h
- 3h
- other:……

Justification:

Please explain what benefits the new content provide (max. 500 words)

……

……

In what way the new resources align with the Green Transition? (max. 500 words)

……

……

Does the new content supplement the existing U-Green Microtrainings? If so, please specify which one.

……

……

Is there a link to the SDGs? If so, please specify the connection.

……

……

Additional comments:

……

Note: All submitted materials are reviewed by the U-Green Consortium members in accordance with the provisions of the U-Green Sustainability Plan.

Fig. 2. Application form template

5. FINAL REMARKS

We hope that the U-Green Knowledge Toolkit serves as a valuable resource for understanding and navigating the complexities of the green transition. As the world faces urgent environmental challenges, transitioning towards a sustainable, low-carbon economy is not just an option but a necessity. The tools, strategies, and insights provided in this toolkit aim to empower individuals, businesses, and policymakers to make informed decisions that promote environmental stewardship, economic resilience, and social well-being.

The green transition is an evolving journey, requiring innovation, collaboration, and commitment from all sectors of society, including HEI and universities. By adopting sustainable practices, leveraging green technologies, and fostering a culture of environmental responsibility, we can contribute to a future that is both prosperous and ecologically balanced. It is our collective responsibility to drive this change forward, ensuring that future generations inherit a planet capable of sustaining life in harmony with nature.

Let this toolkit be a guide, sparking ideas and actions that move us closer to a sustainable world. The time for change is now, and together, we can make a lasting impact.

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