

SUSTAINABILITY

AWARENESS



SUSTAINABILITY AWARENESS

THE ECF4CLIM ROADMAP:

A JOURNEY TOWARD SUSTAINABILITY IN EDUCATION

The European sustainability competence framework, known as **GreenComp**, provides a comprehensive description of the knowledge, skills, and attitudes needed to foster sustainability. It encourages individuals and organisations to think, plan, and act with empathy, responsibility, and care for the planet. Built on extensive research and shaped through collaboration among experts, GreenComp serves as a foundation for guiding educational communities toward more sustainable futures.

At **ECF4CLIM** project, we've taken the **GreenComp** framework a step further by developing an initial Roadmap for Sustainability Education. This roadmap offers practical guidance for schools and universities to incorporate sustainability into their everyday operations, ensuring that students and staff alike embrace sustainable practices. By connecting competences to processes of change, the roadmap provides insights into methods, available materials, potential challenges, enablers, and the competences needed to foster individual and organisational growth in sustainability.



DID YOU KNOW ?

**SUSTAINABILITY IS NOT JUST AN IDEA
IT'S SOMETHING WE CAN DO!**

GreenComp provides the foundation for sustainability learning at the individual level, while the ECF4CLIM Roadmap expands sustainability competences to also address collective and technical-material competences, and translates these individual, collective and technical material competences into practical action steps for schools, universities, and organisations.

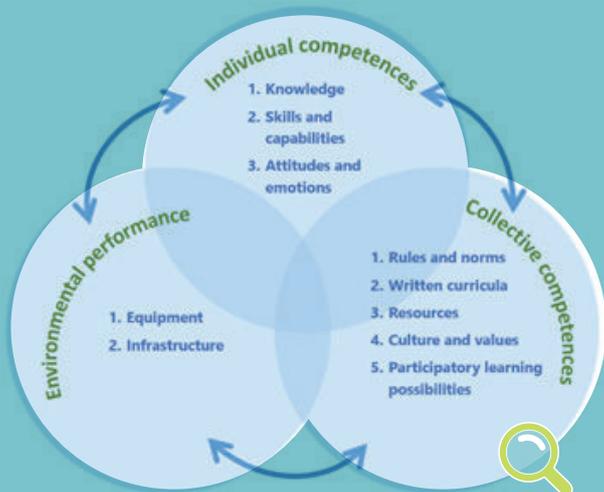
Through the ECF4CLIM Roadmap, you can apply these concepts in real life, whether it's through small personal changes or bigger collective projects. Are you ready to act?



At the ECF4CLIM project, we define **sustainability**, in line with planetary wellbeing, and referring to the GreenComp framework. Sustainability means *“prioritising the needs of all life forms and of the planet by ensuring that human activity does not exceed planetary boundaries”*.

GreenComp considers that “a **sustainability competence** empowers learners to embody sustainability values, and embrace complex systems, in order to take or request action that restores and maintains ecosystem health and enhances justice, generating visions for sustainable futures”. It focuses on developing sustainability knowledge, skills and attitudes for learners so they can think, plan and act with sustainability in mind, to live in tune with the planet.

In ECF4CLIM, we expand upon the definition of sustainability competence as *“an ability to act in an appropriate way to achieve sustainability goals successfully and efficiently”*. Furthermore, we assume that achieving sustainability goals requires the ability to act in three interconnected spheres: the individual, the collective and the technical-material. To effect transformative change, we must consider these three spheres and how they interact with each other.



INDIVIDUAL COMPETENCES

These refer to the personal qualities and abilities—knowledge, skills, and attitudes—that empower individuals to embody sustainability values, understand complex systems, and take or request action that restores and maintains ecosystem health and enhances justice, generating visions for sustainable futures. Individual competences are always developed and exercised within specific social, cultural, and material contexts, and are essential for students, teachers, administrators, and all stakeholders in educational settings.

Knowledge: What one knows and understands about sustainability, systems, and their interconnections.

Skills & Capabilities: How one applies knowledge, analyses situations, and performs tasks to promote sustainability.

Attitudes & Emotions: How one relates to others and the world, including values, motivations, and emotional engagement with sustainability challenges.

COLLECTIVE COMPETENCES

These refer to the capacity of a community or organisation to act coherently and purposefully for sustainability. Collective competences are shaped by the interaction of human, material, institutional, symbolic, and discursive environments, and include enabling and constraining factors that shape the ability to promote sustainability and support individual competences.

Regulative Competences: External rules and regulations (laws, policies, curricula) that stipulate how sustainability is to be promoted.

Normative Competences: Internal strategies, values, and organisational cultures that guide collective action and decision-making.

Cultural-Cognitive Competences: Internalised, taken-for-granted assumptions, habits, and routines that shape everyday practices and the operating culture of the organisation.

Resources: Human, economic, and time resources, as well as access to knowledge and support for participatory approaches.

Participatory Structures: Mechanisms for inclusive decision-making, such as committees, teams, and opportunities for dialogue and collaboration.

TECHNICAL-MATERIAL COMPETENCES:

This dimension refers to the institution’s capability to avoid or minimise environmental impact, or to improve the environment, through technical means or infrastructure improvements. Technical-material competences are not just about equipment, but also about how material conditions enable or constrain sustainability action and learning.

Equipment & Tools: Devices and facilities that measure, monitor, or improve environmental conditions (e.g., solar panels, sensors, recycling stations, smart monitoring).

Infrastructure: School buildings, green spaces, transport options, energy and water systems, and other physical environments that support or hinder sustainability.

The three dimensions of sustainability competences — individual, collective, and technical-material— are not isolated or hierarchical, but deeply intertwined and interdependent. They are like three spots lighting the same phenomenon. Competences in educational practices rarely emerge from one of these domains alone; rather, it is generated through their dynamic interaction.

REAL EXAMPLE

Solar Panels in Romanian Schools

In **Romania**, students and staff installed photovoltaic solar panels on the school roof. This not only reduced the school's carbon footprint but also turned the school into an energy prosumer. The initiative included real-time energy monitoring and educational materials to raise awareness about renewable energy.

PLAY VIDEO

These individual, collective, and technical-material competences are at the heart of the ECF4CLIM Roadmap, which expands on GreenComp by recognising that sustainability in education is a multi-level, interconnected process. The roadmap is structured around four dynamic and intertwined areas: **Engagement**, **Connections**, **Change**, and **Action**. Each area addresses not only personal knowledge and skills, but also the collective capacity of communities and the enabling role of technical and material conditions.



Each handbook in the ECF4CLIM series explores one of these areas, offering practical pathways for students, teachers, and institutions to embed sustainability competences into everyday practice and foster real transformation.

DO YOU WANT TO BE PART OF THE CHANGE?

Learn more in the next pages!

This table shows the four key areas of the ECF4CLIM Roadmap for building sustainability competences: **Engagement**, **Connections**, **Change**, and **Action**. Each area helps us learn and act in different ways.

GreenComp areas	Focus areas in practice	Focal sustainability competences in practice	GreenComp competences
Embodying sustainability values		Values: Priorities & motives	Valuing sustainability
		Participation: Fairness & inclusion	Supporting fairness
		Nature: Knowledge & relation	Promoting nature
Embracing complexity in sustainability		Systems: Complexity & roots	Systems thinking
		Perspectives: Assumptions & critical thinking	Critical thinking
		Problems: Behaviour & performance	Problem framing
Envisioning sustainable futures		Future: Visions & concreteness	Futures literacy
		Adaptation: Flexibility & well-being	Adaptability
		Innovation: Creativity & transdisciplinarity	Exploratory thinking
Acting for sustainability		Advocacy: Steering & expansion	Political agency
		Community: Leadership & teamwork	Collective action
		Actors: Competence & inner resources	Individual initiatives

THE FOUR AREAS OF THE ECF4CLIM ROADMAP

ENGAGEMENT

reflecting on the value of sustainability: This area supports schools and universities in reflecting on sustainability values and embedding them in daily practices. It highlights the need for collective reflection, inclusive participation, and collaboration—ensuring sustainability becomes a shared value and lived experience across the community.

Example: Students discuss what matters to them and help plan a school garden, learning about fairness and caring for nature.

[MORE INFO](#) 

CONNECTIONS

identifying links with everyday life and encouraging critical thinking: This area fosters critical and systems thinking by helping students and educators recognise the complex interconnections between daily activities, disciplines, and global sustainability challenges. It broadens understanding of how local actions contribute to global impacts and encourages multidisciplinary approaches.

Example: In science class, students explore how recycling at school connects to global waste problems, using critical thinking to see the bigger picture.

[MORE INFO](#) 

CHANGE

imagining desirable futures and mapping paths to change: This area empowers educational institutions to envision and co-create more sustainable futures by nurturing creativity, adaptability, and innovation. It motivates students to move beyond unsustainable habits, explore alternative solutions, and collaboratively shape lasting transformation.

Example: Students imagine what their school could look like in 2030 if everyone saved energy and reduced waste, then brainstorm creative solutions together.

[MORE INFO](#) 

ACTION

turning values into concrete and strategic initiatives: The final area focuses on turning visions into reality through concrete, measurable steps. It emphasises the importance of both individual and collective initiatives, and calls for regular assessment of environmental performance to maximise positive impact and ensure continuous improvement.

Example: The class starts a campaign to reduce single-use plastics, working as a team and encouraging others to join in for real change.

[MORE INFO](#) 

ECF4CLIM PROJECT AND THE ECF4CLIM ROADMAP
FOR SUSTAINABILITY COMPETENCES

[PLAY VIDEO](#) 

WELCOME TO A WORLD OF KNOWLEDGE AND DISCOVERY!

This is the first of a total of five flipbooks, each carefully crafted to help you explore the fascinating topics of climate change and sustainable development. These flipbooks are thoughtfully categorised according to the **ECF4CLIM Roadmap** areas, with each one reflecting a different area in the journey toward sustainability.

This introductory handbook is your starting point. From here, you can gain insights that will guide you toward making sustainable choices. Once you've acquired the knowledge, you can put it to the test in the **ECF4CLIM Serious Game**, where you'll challenge yourself to apply what you've learned in a real-world scenario: an abandoned shopping mall!

Are you ready to take on the challenge? Do you have what it takes to be part of the movement toward sustainable change?

We believe in your potential and wish you the best of luck as you embark on this awakening journey of learning and transformation. Together, we can have a positive impact and create a more sustainable future for all!

SUSTAINABILITY AWARENESS

Sustainability awareness involves understanding the impact of our actions on the environment and society. It means recognising how the choices we make—such as the way we use resources, consume products or manage waste—affect the planet.

Being aware of sustainability issues encourages us to take responsibility for improving the environment, make more informed decisions to protect our environment, promote social equity, and ensure economic prosperity without compromising future generations' ability to meet their needs.

Sustainability covers a wide range of topics, including climate change, environmental degradation, social justice, and economic fairness. By raising awareness about these issues, individuals can make positive changes in their daily lives and advocate for policies that lead to more sustainable practices on a larger scale.



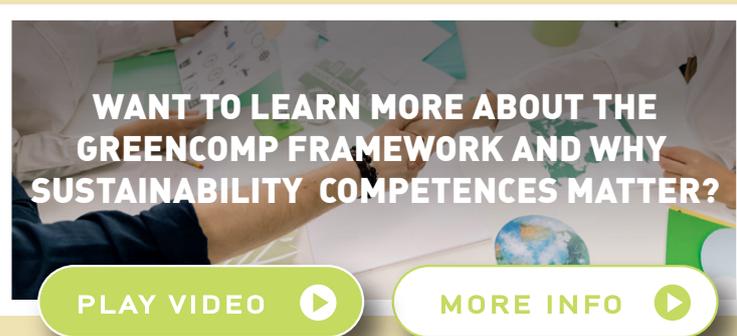
Economic Sustainability: Supporting local economies and businesses that adopt sustainable practices, such as circular economy models, eco-friendly production, and fair labour standards, ensuring prosperity within planetary limits.

Social Sustainability: Guaranteeing equitable access to basic needs—clean water, healthcare, education, and participation in society—regardless of background, and fostering justice, inclusion, and wellbeing for present and future generations.

Environmental Sustainability: Protecting and restoring ecosystems, reducing carbon emissions, and using renewable resources, while respecting planetary boundaries and recognising that humans are part of nature.

Cultural Sustainability: Continuously reflecting on and adapting our ways of living, thinking, and valuing, so that cultural practices and identities contribute to a more sustainable and resilient society.

The ECF4CLIM approach highlights that ecological, social, economic, and cultural aspects are deeply connected, and that fostering sustainability requires action, reflection, and adaptation across all these dimensions. Knowledge, skills, and attitudes for sustainability must be developed at the personal level, supported by organisational cultures and norms, and enabled by appropriate infrastructures and technologies.



WANT TO LEARN MORE ABOUT THE GREENCOMP FRAMEWORK AND WHY SUSTAINABILITY COMPETENCES MATTER?

PLAY VIDEO

MORE INFO

SUSTAINABLE DEVELOPMENT GOALS (SDG)

The **Sustainable Development Goals** (SDGs) were adopted by the United Nations in 2015 as part of the 2030 Agenda for Sustainable Development. These 17 goals represent a global effort to address critical issues such as poverty, inequality, climate change, and environmental degradation. The SDGs provide a framework for individuals, governments, and organisations to work together toward a more sustainable and equitable world.



SOME OF THE 17 SDGS INCLUDE:

No Poverty: Ending poverty in all its forms everywhere.

Zero Hunger: Achieving food security and improved nutrition, and promoting sustainable agriculture.

Clean Water and Sanitation: Ensuring availability and sustainable management of water and sanitation for all.

Affordable and Clean Energy: Ensuring access to affordable, reliable, sustainable, and modern energy for all.

Climate Action: Taking urgent action to combat climate change and its impacts.

Life Below Water and Life on Land: Protecting marine and terrestrial ecosystems.

These goals are crucial for guiding global efforts to achieve a better and more sustainable future. They remind us that addressing climate change and sustainability issues requires coordinated action at every level, from individuals to governments.



DO YOU KNOW ALL 17 SDGS?

PLAY VIDEO

HOW CAN WE ACT?

Understanding sustainability is not just about learning the facts—it's about taking action. Here are some ways to make a positive impact:

Reduce Waste: practise recycling, reduce plastic use, and encourage others to do the same.

Conserve Energy: Turn off lights when not in use, use energy-efficient appliances, and consider renewable energy options like solar panels.

Promote Equality: Advocate for social justice and equitable policies that ensure access to resources for all communities.

Get involved: Participate in local sustainability projects, such as planting trees, starting a community garden, or joining a climate action group.

Raise Awareness: Use social media, school projects, or community events to spread awareness about sustainability and how others can participate.

By embracing sustainable practices, you can contribute to the global effort to protect the planet and improve the quality of life for everyone.

And you and your school—what do you do to have a positive impact? Are there sustainability actions already in place? Could you start something new? Whether it's a recycling campaign, a student-led green club, or simply spreading awareness among friends, every action counts.

REAL EXAMPLE

Ready to get inspired? Twenty-two exemplary interventions have been selected by our demonstration sites, in close collaboration with the research team, to show how schools and learning communities can take real action for the climate.

These examples shine a light on what's possible when education becomes a driver of transformation. Each initiative was chosen because it makes an impact, can be adapted anywhere, and reflects the four key dimensions of the ECF4CLIM Roadmap.

You'll also discover how these interventions connect to the three spheres of the ECF4CLIM Analytical Framework—individual, collective, and technical-material competences.

Dive in and explore how these inspiring stories show the power of education to spark systemic, sustainable change—one action, one idea, one community at a time.

PLAY VIDEO



GLOBAL INITIATIVES AND FRAMEWORKS

SHAPING A SUSTAINABLE FUTURE

After exploring the **ECF4CLIM Roadmap** and how it guides educational communities toward sustainability, it's important to understand the broader global and regional efforts that shape our journey. From international agreements like the Paris Agreement to regional strategies such as the European Green Deal and scientific concepts like Planetary Boundaries, these frameworks provide the foundation for a collective response to climate change and environmental challenges. Together, they offer a pathway for schools, universities, and individuals to contribute to a more sustainable world.

THE PARIS AGREEMENT

A GLOBAL COMMITMENT TO CLIMATE ACTION



The **Paris Agreement**, signed in 2015, is a historic global pact aimed at addressing climate change and its devastating effects. Countries around the world came together to agree on one crucial goal: to keep the Earth's average temperature from rising more than 2°C above pre-industrial levels, and preferably to limit the increase to 1.5°C. Why? Because even a small temperature rise can lead to severe consequences, such as rising sea levels, extreme weather, and threats to ecosystems and communities worldwide.

But the Paris Agreement isn't just about setting limits. It's also about empowering nations to act, encouraging each country to submit its climate action plan, known as a Nationally Determined Contribution (NDC). These plans are regularly updated to reflect stronger climate efforts. By working together, countries aim to reduce greenhouse gas emissions, adapt to the impacts of climate change, and support one another with finance and technology to achieve these goals.

The Paris Agreement represents hope—hope that with commitment and cooperation, we can protect our planet and secure a safer, more sustainable future for generations to come.

DO YOU WANT TO LEARN MORE?

CHECK THE PARIS AGREEMENT INFOGRAPHICS

MORE INFO

THE EUROPEAN GREEN

DEAL: A PATHWAY TO A GREENER FUTURE

The **European Green Deal** is Europe's ambitious roadmap to transform the way we live, work, and grow—while protecting the environment. Introduced in 2019, the Green Deal outlines the European Union's plan to become climate-neutral by 2050, meaning the EU aims to eliminate as many greenhouse gas emissions as it produces.



The European Green Deal focuses on multiple areas of sustainability:

Clean Energy: Promoting renewable energy sources like solar and wind and reducing reliance on fossil fuels.

Circular Economy: Moving away from a "take-make-dispose" culture to one that emphasizes recycling, reusing, and reducing waste.

Sustainable Agriculture: Supporting farmers to adopt eco-friendly practices and produce food in ways that don't harm the environment.

Biodiversity: Protecting natural habitats and wildlife by addressing deforestation and habitat loss.



One of the most exciting aspects of the Green Deal is that it's not just about governments and businesses taking action. It encourages everyone, including people like you, to contribute by adopting sustainable practices and becoming active in their communities.

The Green Deal shows us that Europe is committed to leading the way toward a greener, healthier, and more sustainable future for all.

PLANETARY BOUNDARIES

UNDERSTANDING OUR LIMITS

The concept of planetary boundaries helps us understand the limits within which humanity can safely operate to keep the planet stable. Imagine Earth as a giant life-support system—we need clean air, water, a stable climate, and healthy ecosystems to thrive. But human activities, such as pollution, deforestation, and overuse of resources, are pushing the planet beyond its safe limits. If we cross these boundaries, we risk causing irreversible damage to the environment.

THERE ARE NINE KEY PLANETARY BOUNDARIES, INCLUDING:

Climate Change: The increase in global temperatures due to greenhouse gas emissions.

Biodiversity Loss: The extinction of species and destruction of ecosystems.

Ocean Acidification: The increase in ocean acidity, which harms marine life.

Land-Use Changes: Deforestation and conversion of land for agriculture, which reduce natural habitats.

Scientists believe that staying within these boundaries is essential to keeping Earth's systems stable and functional. If we respect these limits, we can protect the environment and ensure that future generations have a planet where they can thrive.

However, according to recent scientific assessments referenced in the ECF4CLIM Roadmap, several of these boundaries—such as those for climate change, biodiversity loss, and land-use change—have already been crossed, increasing the urgency for transformative action.

The idea of planetary boundaries encourages us to live more sustainably by respecting the Earth's natural limits, whether through reducing waste, conserving water, or protecting biodiversity. By understanding these boundaries, we can help protect our planet's health and maintain the balance that life on Earth depends on.

BIOECONOMY

HARNESSING NATURE FOR A SUSTAINABLE FUTURE

Understanding the bioeconomy is a key part of the larger journey toward sustainability. It offers innovative solutions to some of the biggest environmental challenges we face today, from reducing waste to cutting down on carbon emissions.

As part of the ECF4CLIM roadmap, exploring the bioeconomy encourages us to think critically about how we can use the Earth's resources wisely and create systems that benefit both people and the planet.

The bioeconomy is all about using renewable biological resources—such as plants, animals, and microorganisms—to produce food, materials, and energy in ways that support the environment. It's a shift away from relying on non-renewable resources, like fossil fuels, toward sustainable practices that work with nature, rather than against it.

A key part of the bioeconomy is finding innovative ways to use natural resources more efficiently and responsibly. This means developing biobased products that are not only better for the environment but also support economic growth and job creation. The bioeconomy represents a new way of thinking about production and consumption, where sustainability is at the heart of everything we do.



WHY IS THE BIOECONOMY IMPORTANT?

The bioeconomy is crucial because it addresses three major challenges:

Environmental Protection: By using renewable resources, we reduce our dependence on fossil fuels and cut down on pollution, helping to protect ecosystems and biodiversity.

Economic Growth: The bioeconomy creates new opportunities for innovation, research, and development. It fosters job creation, particularly in rural areas, as industries related to farming, forestry, and bioproducts expand.

Resource Security: As the world's population grows, the demand for food, materials, and energy increases. The bioeconomy offers a way to meet these needs sustainably, ensuring we don't exhaust the planet's resources.



HOW DOES THE BIOECONOMY WORK?

At the core of the bioeconomy is the idea of circularity—making sure that nothing goes to waste. Instead of simply using a resource once and throwing it away, the bioeconomy encourages us to find ways to reuse, recycle, and repurpose it. This not only reduces waste but also helps to keep the environmental impact of production as low as possible.

For example:

Biomass (organic materials such as wood, crops, and algae) can be used to produce energy, bioplastics, and even biofuels.

Agricultural waste, such as leftover plant material, can be converted into bioproducts like fertilizers or bio-based packaging, reducing the need for fossil fuel-based materials.

Forest-based industries use trees to produce a wide range of bioproducts—from paper and textiles to bioplastics and building materials.

By using what nature provides in a responsible way, the bioeconomy helps create a sustainable cycle where resources are constantly replenished.

THE BIOECONOMY IN OUR EVERYDAY LIVES !

PLAY VIDEO



BIOECONOMY IN ACTION

One exciting example of the bioeconomy in action is the Bloom Bioeconomy Suitcase. This educational tool is filled with examples of biobased products made from renewable resources. It showcases items like biodegradable packaging, plant-based plastics, and eco-friendly fabrics, helping people learn about the environmental benefits of these products.

The Bloom Bioeconomy Suitcase demonstrates how the bioeconomy can be applied in everyday life—showing that sustainability doesn't just happen in labs or on farms, but also in the products we use daily. It reminds us that by choosing biobased products, we're supporting industries that are committed to protecting the planet and creating a sustainable future.

Together, the bioeconomy and the ECF4CLIM sustainability framework guide us toward a future where growth, innovation, and environmental protection go hand in hand.

DO YOU WANT TO LEARN MORE?



**EXPLORE THE BIOECONOMY
COUNTRY DASHBOARD AND
THE FACTSHEET FOR AN
OVERVIEW OF BIOECONOMY
STRATEGIES AND THEIR KEY
POLICY ACTIONS AND AREAS.**

MORE INFO



Climate
Action
NOW

ate

on

v!

WE NEED

A

CHANGE

CIRCULAR ECONOMY

REDUCING WASTE, MAXIMIZING RESOURCES

The circular economy is a model of production and consumption that prioritizes reducing waste, reusing resources, and recycling materials to create a more sustainable system. Unlike the traditional "take, make, dispose" linear economy, where products are used once and discarded, the circular economy aims to keep materials in use for as long as possible, minimizing waste and environmental harm.

In a circular economy, products are designed to last longer, be repaired easily, and, at the end of their life, be broken down into raw materials that can be reused. This approach not only helps to protect the environment by reducing waste and pollution but also creates economic opportunities through innovation and the efficient use of resources.

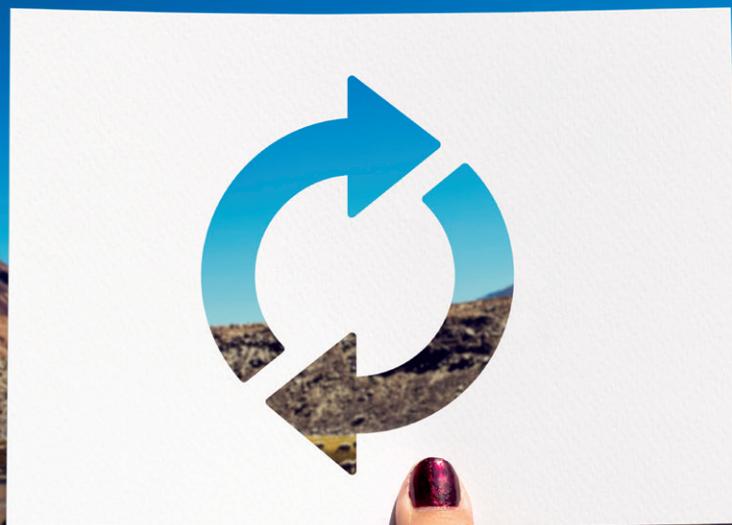
Why is the Circular Economy Important?

As global demand for products and resources grows, the traditional linear model of production is becoming unsustainable. The circular economy offers a way to address this challenge by:

1.Reducing Waste: By designing products that can be reused, repaired, or recycled, the circular economy helps to drastically cut down the amount of waste that ends up in landfills and oceans.

2.Conserving Resources: Instead of constantly extracting new raw materials from the earth, the circular economy encourages us to make better use of the materials we already have, helping to preserve natural resources for future generations.

3.Encouraging Innovation: The shift to a circular economy drives businesses and industries to rethink the way they design products and processes, leading to new innovations in materials, manufacturing, and recycling technologies.



HOW DOES THE CIRCULAR ECONOMY WORK?

The circular economy operates through three main principles:

Designing out waste and pollution: Products are designed to minimize waste from the very beginning. This includes choosing materials that can be easily recycled or repurposed and creating products that are built to last.

Keeping products and materials in use: By encouraging practices like reusing, repairing, refurbishing, and recycling, the circular economy aims to keep materials in use for as long as possible. This reduces the need for new resources and helps cut down on waste.

Regenerating natural systems: The circular economy goes beyond reducing harm to the environment—it also seeks to actively restore and regenerate natural systems. For example, by composting organic waste, nutrients are returned to the soil, helping to support healthy ecosystems.

CIRCULAR ECONOMY IN PRACTISE

One real-world example of the circular economy in action is second-hand clothing. Rather than throwing out clothes that are no longer wanted, they can be resold, repaired, or upcycled into new items. This keeps textiles in use for longer, reducing the demand for new fabrics and minimizing the waste associated with fast fashion.

Another example is electronics recycling. Many electronic devices contain valuable metals and materials that can be recovered and reused. Through programs that encourage the recycling of old phones, computers, and appliances, these materials can be extracted and used to create new products, reducing the need for mining and extraction of new raw materials.

The circular economy also benefits businesses by creating new opportunities for innovation and profit. Companies that embrace circular practices can reduce costs, create new revenue streams (such as through recycling or offering product repair services), and build stronger relationships with environmentally conscious consumers.

Understanding the circular economy is essential for creating a sustainable future. By rethinking the way we produce and consume, we can reduce our impact on the planet, conserve valuable resources, and foster a more resilient economy.

This is a key part of the ECF4CLIM Roadmap — encouraging individuals and institutions to shift from wasteful, linear models to circular practices that benefit both people and the environment.

As we continue to explore ways to build a more sustainable world, embracing the principles of the circular economy can help ensure that the resources we depend on today will be available for future generations. It's about creating systems that work for both nature and society, promoting long-term sustainability and reducing our environmental footprint.

DO YOU WANT TO KNOW ?

HOW DOES THIS AFFECT ALL OF US?
LEARN MORE ABOUT CIRCULAR ECONOMY
AND ITS BENEFITS.

MORE INFO



GREENWASHING

IN THE FASHION INDUSTRY

The fashion industry is overflowing with labels, initiatives, and certification programs all trying to make it more environmentally friendly. These programs serve two purposes for the brands. They are partially a genuine effort to be sustainable, but they also allow the brands to appear more environmentally responsible, even if they aren't doing much for the environment.

This report investigated whether these labels, initiatives, and certification programs are doing a good job and helping to reduce the harm caused by the fashion industry. The results showed that most of these programs make consumers think their textiles are certified as sustainable, but they actually make it seem like they're better for the environment. So, think twice when you go to the mall and buy a new shirt!

DID YOU KNOW ?

THAT LESS THAN 1% OF OLD CLOTHING BECOMES NEW CLOTHES?

Make a circular economy for fashion

Clothes are an everyday necessity, and for many, an important aspect of self-expression. Yet the way we make and use our clothes is extremely wasteful and polluting.

PLAY VIDEO



TEST YOUR KNOWLEDGE AT THE ECF4CLIM GAME

AND CHECK HOW YOU CAN ACT MORE SUSTAINABLY!



PLANNED OBSOLESCENCE

Imagine you have a smartphone that you really like and use everyday. But after a while, it stops working, or you notice that a new and improved version of the smartphone has come out. The company that made your smartphone did this on purpose so that you would want to buy the new one. They did this by making your smartphone only last for a certain amount of time, even though it could have lasted longer.

This is called planned obsolescence. Companies do this to encourage people to keep buying their products so they can earn more money. This is not fair because it makes people waste their old smartphones and buy new ones all the time, even if they don't need to.

WHAT CAN WE DO?

**TO COMBAT
PLANNED OBSOLESCENCE?**

MORE INFO

E-WASTE

HOW OFTEN DO YOU BUY A NEW PHONE?

Do you get a new phone when your old one breaks, is beyond repair or just because you want to update to a more modern one? What do you do with your old phone, laptop or other electronics when they no longer serve their purpose? Do they stay tucked in a drawer somewhere in the house, do you sell it, throw it away or recycle it? Did you know that electronics contain valuable materials like gold, copper, silver and palladium? As well as many metals and materials that are harmful to people, animals and the environment?

When electronic products come to the end of their life, they become waste. Electronic waste. When electronic products come to the end of their life, they become waste—electronic waste, or e-waste. In 2022, the world generated a record 62 million tonnes of e-waste, a dramatic increase from previous years. Only about 22.3% of this was properly collected and recycled, leaving the majority to be dumped, stored, or processed unsafely. E-waste is a term used to cover items of all types of electrical and electronic equipment (EEE) and their parts that have been discarded by the owner as waste without the intention of re-use.

This surge in e-waste highlights the urgent need for improved recycling and responsible consumption.

LEARN MORE

HOW OFTEN DO YOU BUY A NEW PHONE?



MORE INFO

THE RIGHT TO REPAIR BECAME ESSENTIAL

Repairable products and waste prevention is not only a matter of European policies. Across Europe, there's a lot going on both at a national and local level!

THE "RIGHT TO REPAIR" GOES BEYOND BRUSSELS: IT'S A GLOBAL CITIZEN ISSUE!



PLAY VIDEO

CLIMATE CHANGE

UNDERSTANDING THE CRISIS AND TAKING ACTION

Climate change refers to long-term shifts in temperatures and weather patterns, primarily caused by human activities, such as burning fossil fuels like coal, oil, and gas. These activities release greenhouse gases (such as carbon dioxide, methane, and nitrous oxide) into the atmosphere, trapping heat and causing global temperatures to rise. This warming of the planet is leading to severe consequences, including more frequent and intense weather events, rising sea levels, and disruptions to ecosystems and human life.

WHY IS CLIMATE CHANGE IMPORTANT?

Climate change is one of the greatest challenges that humanity faces today because it affects every aspect of life on Earth. If left unchecked, the impacts of climate change will continue to worsen, threatening the environment, the economy, and human health. Some of the key reasons climate change is a pressing issue include:

Extreme Weather: Global warming is leading to more intense storms, floods, heat waves, droughts, and wildfires. These events not only damage communities and infrastructure but also disrupt food production and endanger lives.

Rising Sea Levels: As glaciers and ice caps melt due to higher temperatures, sea levels are rising, putting coastal cities and communities at risk of flooding and displacement.

Biodiversity Loss: Many species are struggling to adapt to changing climates, leading to habitat loss and extinction.

This disrupts ecosystems and threatens the balance of nature.

Human Health: Climate change is increasing the spread of diseases, exacerbating heat-related illnesses, and causing food and water shortages, particularly in vulnerable regions.

WHAT CAUSES CLIMATE CHANGE?

The primary driver of climate change is the greenhouse effect. Normally, sunlight enters the Earth's atmosphere, and some of it is reflected back into space, while the rest warms the planet. Greenhouse gases, like carbon dioxide (CO₂) and methane (CH₄), act like a blanket, trapping some of the heat and preventing it from escaping back into space. While this is a natural process that keeps our planet warm enough to support life, human activities have drastically increased the concentration of these gases, causing more heat to be trapped and leading to global warming.

Key human activities contributing to climate change include:

Burning Fossil Fuels: Powering cars, factories, and homes with coal, oil, and gas releases large amounts of CO₂ into the atmosphere.

Deforestation: Cutting down trees not only reduces the Earth's ability to absorb CO₂ but also releases carbon stored in trees and plants.

Agriculture: Farming practices, such as raising livestock, generate significant amounts of methane, a potent greenhouse gas.

Waste: Landfills and waste management practices can release methane into the atmosphere as organic matter breaks down.



HOW CAN WE COMBAT CLIMATE CHANGE?

Addressing climate change requires both individual and collective action. While governments, businesses, and industries play a critical role in reducing greenhouse gas emissions, everyone can contribute to mitigating climate change by making more sustainable choices.

Here are some key ways to help combat climate change:

Reduce Energy Use: Use energy-efficient appliances, switch to renewable energy sources like solar or wind, and turn off lights and electronics when not in use. **See this real-life example in Romania!**

Drive Less, Walk More: Walking, biking, or using public transport reduces your carbon footprint compared to driving cars powered by fossil fuels. **Use ECF4CLIM Footprint Calculator to self-assess your performance!**

Eat a Plant-Based Diet: Reducing meat consumption, particularly beef, can significantly lower methane emissions and reduce the environmental impact of food production. **Seen how students did in Finland!**

Conserve Water: Saving water also saves energy, as it takes power to pump, heat, and treat water. **See this real-life example in Romania!**

Advocate for Change: participate in local climate action initiatives, raise awareness, and support policies that promote renewable energy and carbon reduction efforts. **Check how students in Finland established a student sustainability action group.**

DID YOU KNOW?

You can explore how to combat climate change with the ECF4CLIM platform! Visit ECF4CLIM Simulators Space to engage with interactive simulators and tools that will help you learn how individual and collective actions and systemic changes can make a difference. Discover how you can reduce your carbon footprint, promote energy efficiency, and contribute to a more sustainable future. Get started and be part of the solution!

PLAY VIDEO



THE GLOBAL RESPONSE TO CLIMATE CHANGE

Governments and international organizations around the world are recognizing the urgency of the climate crisis and have committed to ambitious goals to reduce greenhouse gas emissions. The Paris Agreement, adopted in 2015, was a major milestone in global climate action, setting the target of limiting global warming to well below 2°C, with efforts to limit it to 1.5°C above pre-industrial levels.

Many countries are now working towards achieving net-zero emissions by 2050, meaning they will balance the amount of greenhouse gases they emit with the amount they remove from the atmosphere. This requires significant investments in renewable energy, sustainable agriculture, and greener transportation systems.

HOW DO WE KNOW EARTH IS CHANGING?

Scientists can use new and old pictures to keep track of Earth's changes over time. Since Earth is where we live – and it's the only planet we know of that we can live on – scientists are constantly observing its land, water, and air. By capturing images from the ground and images from satellites in the sky, we can see how our planet is different than it used to be.

PLAY VIDEO



CLIMATE CHANGE AND YOU

The fight against climate change starts with awareness, but it doesn't end there. Each of us has a role to play in reducing our carbon footprint and promoting sustainable practices. Whether it's reducing waste, saving energy, or advocating for climate policies, every action counts. As part of the ECF4CLIM Roadmap, we encourage students, educators, and communities to take an active role in addressing climate change and pushing for a more sustainable future.

Understanding the science behind climate change helps us see the urgency of the situation, but it's through collective action that we can create lasting change. Together, we can work towards a healthier planet and a brighter, more sustainable future for generations to come.

**WHAT EARTH IN 2050 COULD
LOOK LIKE? WHAT COULD OUR
FUTURE WORLD LOOK LIKE IF
WE CONTINUE TO DO NOTHING
ABOUT CLIMATE CHANGE?
TAKE A LOOK AT THE
POSSIBILITIES.**

PLAY VIDEO





ENERGY

POWERING A SUSTAINABLE FUTURE

Energy is essential for everything we do—from lighting our homes to powering factories. But the way we currently generate energy, mainly from fossil fuels like coal, oil, and natural gas, is a major contributor to climate change. To combat this, we need to transition to cleaner, renewable energy sources such as wind, solar, and hydropower, which produce electricity without emitting greenhouse gases.

WHY IS SUSTAINABLE ENERGY IMPORTANT?

Reducing Carbon Emissions: Fossil fuel-based energy is responsible for a significant portion of global carbon dioxide (CO₂) emissions. Switching to renewable energy sources can drastically reduce these emissions, helping to mitigate the effects of climate change.

Energy Independence: Renewable energy can be generated locally, reducing dependence on imported fossil fuels and enhancing energy security.

Job Creation: The shift to renewable energy creates new industries and job opportunities in areas like solar panel installation, wind turbine maintenance, and energy storage.

HOW CAN WE USE ENERGY MORE SUSTAINABLY?

Energy Efficiency: Using energy more efficiently is one of the easiest ways to reduce consumption. This can include everything from turning off lights when not in use to insulating buildings to reduce heating and cooling needs.

Renewable Energy: Switching to renewable energy sources, such as installing solar panels or choosing a green energy provider, helps reduce reliance on fossil fuels.

Behaviour Change: Small changes in behaviour, like walking or biking instead of driving, can significantly reduce energy use.

REAL-WORLD EXAMPLES FROM ROMANIA

In an urban setting, a school installed solar panels to generate electricity, reducing its carbon footprint and involving students and teachers in monitoring energy production and consumption. Educational materials and real-time data from the panels were integrated into lessons, helping students understand the link between renewable energy, climate change, and responsible consumption. The initiative fostered technical skills, critical thinking, and environmental responsibility among participants, and inspired the wider community to consider renewable energy solutions.

[MORE INFO](#) 

In a rural area, another school successfully installed photovoltaic panels despite unique challenges, becoming a local example of how even small communities can lead on sustainability. Students, staff, and the community learned about solar energy through hands-on activities, data monitoring, and interdisciplinary lessons. The project encouraged sustainable habits, such as energy conservation and waste reduction, and demonstrated that renewable energy is achievable and beneficial in both urban and rural settings.

[MORE INFO](#) 

AND YOU



What changes do you make in your daily life? How do you save energy — at home, at school, or with your friends? Have you tried using less electricity, turning off devices, or choosing greener ways to travel? Want to explore even more ways to have a positive impact?



WATER

A PRECIOUS RESOURCE

Water is essential for all life on Earth, but it is becoming increasingly scarce due to overuse, pollution, and climate change. Managing water sustainably is critical to ensuring that future generations have access to clean, safe water.

WHY IS WATER SUSTAINABILITY IMPORTANT?

Conserving Resources: Freshwater makes up only about 3% of the water on Earth, and much of it is locked in glaciers. Ensuring we use water responsibly is key to maintaining this limited resource.

Reducing Pollution: Industrial and agricultural activities often lead to water pollution. Sustainable water management involves reducing contaminants to ensure that ecosystems and communities have access to clean water.

Combating Climate Change: Climate change is leading to changes in rainfall patterns, resulting in floods and droughts. Managing water resources helps build resilience against these challenges.



DID YOU KNOW ?

10 Easy Ways to Save Water at Home and Help the Planet:

PLAY VIDEO



HOW CAN WE CONSERVE WATER?

Reduce Water Waste: Simple steps like fixing leaky taps, taking shorter showers, and using water-efficient appliances can make a big difference.

Recycle Water: In some places, greywater (wastewater from sinks and showers) can be reused for irrigation or other purposes, reducing overall water consumption.

Protect Water Sources: Avoid dumping pollutants like chemicals, plastics, or waste into water sources. Participate in clean-up initiatives to keep rivers, lakes, and oceans clean.

REAL EXAMPLE !

WATER CONSERVATION WITH SMART SENSORS IN ROMANIA

A Romanian high school replaced its traditional sinks with sensor-equipped versions to cut down on water waste. Educational posters and materials were created to raise awareness, and the school saw an 11% drop in water consumption within a year.

PLAY VIDEO



WASTE

RETHINKING CONSUMPTION

The waste we generate—from plastic packaging to electronic devices—has a significant environmental impact. Much of this waste ends up in landfills or oceans, where it pollutes the environment and harms wildlife. Reducing waste is key to creating a more sustainable world.

WHY IS WASTE REDUCTION IMPORTANT?

Reducing Pollution: Waste that isn't properly managed can contaminate soil, water, and air, leading to health issues for humans and wildlife.

Conserving Resources: Many products we throw away are made from valuable resources like metals, plastics, and paper. By reducing waste, we conserve these resources for future use.

Cutting Carbon Emissions: Waste in landfills produces methane, a potent greenhouse gas. Reducing waste through recycling, composting, and reusing materials can significantly cut down on emissions.

REAL EXAMPLES

Finland:

Students and teachers worked together to reduce food waste in the school canteen by monitoring biowaste, organising “zero biowaste” days, and allowing leftover food to be purchased, raising awareness about sustainable food choices.

Portugal:

A recycling competition among classes encouraged correct waste sorting, with students earning points for proper recycling and peer-led monitoring, making waste management engaging and collaborative.

Spain (Secondary/High School):

A year-long recycling programme used weekly audits and a flag system to motivate classes, improving communication and reducing non-recyclable waste sent to landfill.

Spain (University):

A university replaced individual bins with selective collection points, involved students in waste monitoring, and inspired broader adoption of better waste management practices across the institution.

DID YOU KNOW?

You can explore renewable energy, water-saving, and waste reduction strategies with ECF4CLIM! By focusing on sustainable energy, water conservation, and waste reduction, we can all play a part in combating climate change and protecting the planet. Each action we take—no matter how small—contributes to a larger global movement toward a more sustainable future. Head over to the **ECF4CLIM Simulators Space** to discover how renewable energy works, how it helps lower carbon emissions, and how you can contribute to global efforts. Be a part of the change today!

[MORE INFO](#)



ECO-ANXIETY AND MENTAL HEALTH

NAVIGATING CLIMATE EMOTIONS

As you can see, the **ECF4CLIM Roadmap** equips us with the tools to understand, imagine, and act for a sustainable future. But while learning and doing are empowering, they can also come with challenges, especially when we truly care about the planet and its future.

Sometimes, the more we learn about environmental problems, the more worried or anxious we might feel. This brings us to an important part of our sustainability journey: learning how to care for the planet and ourselves.

The reality of climate change can feel overwhelming. Many young people today experience eco-anxiety—a deep concern about the future of our planet. While caring about the environment is a good thing, constantly worrying about it can take a toll on mental health. The good news? There are ways to manage eco-anxiety while staying engaged in sustainability efforts.

DID YOU KNOW ?

An international study of 16 to 25 year olds from 10 different countries, including Australia found that 59% of them are very or extremely worried about climate change. Nearly half are so worried that it affects their daily lives and 75% think the future is frightening.

PLAY VIDEO

WHAT IS ECO-ANXIETY?

Eco-anxiety is the stress, fear, or sadness caused by environmental problems and climate change. Unlike general anxiety, it is directly linked to the state of the planet and the uncertainty of the future.

WHY DO PEOPLE FEEL ECO-ANXIETY?

- Constant exposure to negative climate news.
- Feeling powerless to have a positive impact.
- Seeing slow progress in addressing environmental issues.
- Worrying about future generations and the world they will inherit.

It's natural to feel concerned about the environment. The key is turning that concern into action rather than feeling stuck in fear.

HOW DOES ECO-ANXIETY AFFECT MENTAL HEALTH?

Eco-anxiety can lead to increased stress and constant worry about the future, making it difficult to focus on daily tasks. Many people experience feelings of hopelessness or frustration when they see slow progress in addressing climate change, which can make them feel powerless. This ongoing stress can also

impact motivation, leading to difficulty concentrating or staying engaged in school, work, or personal projects. For those actively involved in climate activism, the emotional burden can sometimes result in burnout—feeling exhausted or overwhelmed from the pressure of constantly trying to have a positive impact.



DID YOU KNOW ?

Psychologists report a rise in people suffering from climate change anxiety or eco-anxiety. What's it like? And what can you do to cope?

PLAY VIDEO



COPING WITH ECO-ANXIETY

You're not alone in these feelings, and there are ways to manage eco-anxiety while staying engaged in sustainability efforts.

Stay Informed but Set Boundaries

Learning about climate change is important, but too much negative news can increase stress.

Choose reliable sources and take breaks from social media if it gets overwhelming.

Act: Big or Small

Join sustainability initiatives at school, university, or in your community.

Use platforms like ECF4CLIM to learn and apply solutions in real life.

Celebrate small wins—every action, no matter how small, contributes to change!

Connect with Others

Talk about your feelings with friends, family, or teachers.

Join groups or online communities focused on climate action and mental well-being.

Practice Self-Care and Mindfulness

Spend time in nature—it helps reduce stress and reconnect with the environment.

Try relaxation techniques like deep breathing, yoga, or meditation.

Engage in hobbies that bring joy and creativity.

Turning Anxiety into Action with ECF4CLIM project

Feeling anxious about climate change? Channel that energy into real solutions! The **ECF4CLIM Tools** for Environmental Assessment allows you to explore renewable energy strategies, water conservation, and waste reduction, turning knowledge into meaningful action.

**TOGETHER, WE CAN
TRANSFORM CONCERN INTO
CHANGE!**





YOUR JOURNEY TOWARDS SUSTAINABILITY STARTS HERE!

Congratulations on reaching the end of this flipbook! You've explored key sustainability concepts, from climate change and the bioeconomy to circular economy strategies, mental health, and the role of **ECF4CLIM Roadmap** in shaping a better future. But this is just the beginning!

Sustainability isn't just about knowledge—it's about action. Now that you've built a strong foundation, it's time to apply what you've learned in your daily life, your community, and beyond. Whether it's making eco-friendly choices, spreading awareness, or taking part in sustainability projects, every step counts in creating a more sustainable world.

What's Next?

Discover the **ECF4CLIM Roadmap**!

This flipbook is part of a larger journey, guiding you through four key areas of sustainability learning and action:

Engagement – Explore how individuals and communities participate in sustainability efforts.

Connections – Learn about the links between different environmental, social, and economic systems.

Change – Imagine the possibilities of a greener, more just world and how to make it a reality.

Action – Take real steps toward positive environmental and social change.

Each of the next four flipbooks will dive deeper into these areas, helping you develop the skills, knowledge, and motivation to be part of the movement toward sustainability.

REAL EXAMPLE

Establishing a student sustainability team

In Finland a student-led sustainability team was formed, launching campaigns on recycling, food waste, and fast fashion. This initiative fostered collaboration between students and teachers, boosting environmental awareness and improving school practices.

They also created a video to inspire peers to rethink their clothing habits and reduce textile waste.

PLAY VIDEO 

ARE YOU READY TO CONTINUE YOUR JOURNEY?

Flip to the next chapter of the ECF4CLIM roadmap and take the next step toward making a difference!

GLOSSARY

Bioeconomy

An economic system that uses renewable biological resources—like plants, animals, and microorganisms—to produce food, materials, and energy in a sustainable way.

Circular Economy

A model of production and consumption that minimizes waste by reusing, repairing, refurbishing, and recycling materials and products instead of discarding them.

Climate Change

A long-term shift in global weather patterns caused mainly by human activities, such as burning fossil fuels and deforestation, which increase greenhouse gas emissions and lead to rising temperatures.

Collective Sustainability Competences

The capacity of an organisation to act coherently and purposefully for sustainability

ECF4CLIM

An EU Horizon 2020 project (2021–2025) that aims to promote sustainability competences within educational communities. The full project title is A European Competence Framework for a Low-Carbon Economy and Sustainability through Education.

Eco-Anxiety

A feeling of stress, fear, or sadness about environmental problems, especially climate change, and their impact on the future.

Ecosystem

A community of living organisms (plants, animals, and microorganisms) interacting with each other and their environment (air, water, and soil). Healthy ecosystems are essential for clean air, water, and biodiversity.

European Green Deal

A set of policies and strategies developed by the European Union to make Europe climate-neutral by 2050 through sustainable energy, green jobs, and pollution reduction.

Fossil Fuels

Non-renewable energy sources like coal, oil, and natural gas that release carbon dioxide when burned, contributing to global warming.

GreenComp Framework

A European framework that outlines key sustainability competences, helping individuals develop knowledge, skills, and attitudes to act responsibly for a sustainable future.

Individual Sustainability Competences

Competences that empower learners to embody sustainability values and embrace complex systems, in order to take or request action that restores and maintains ecosystem health and enhances justice, generating visions for sustainable futures.

Net-Zero Emissions

Balancing the amount of greenhouse gases released into the atmosphere with actions that remove or offset them, such as planting trees or using carbon capture technology.

Planetary Boundaries

Limits within which humanity can safely operate without causing severe environmental damage. Crossing these boundaries—such as excessive carbon emissions or biodiversity loss—threatens the stability of Earth's ecosystems.

Renewable Energy

Energy that comes from naturally replenishing sources, such as the sun (solar power), wind (wind power), and water (hydropower), which do not run out and have a lower environmental impact.

Sustainability

A way of living and making decisions that ensures future generations can meet their needs without harming the environment, economy, or society.

Sustainable Development

Development that meets current needs without compromising the ability of future generations to meet theirs, balancing environmental, social, and economic factors.

Technical-material competences

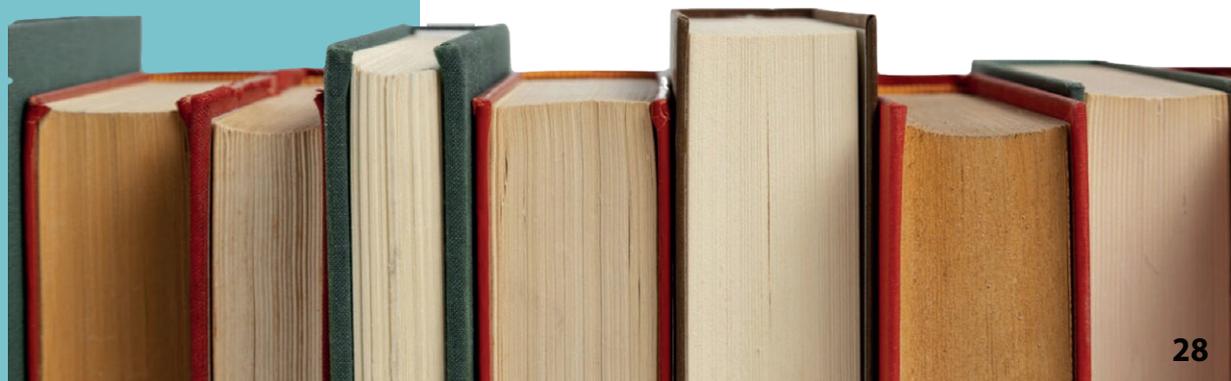
Institution's capability to avoid or minimise environmental load, or to improve the environment, through technical means or infrastructure improvements

Waste Reduction

Minimizing the amount of waste produced by consuming less, reusing materials, recycling, and composting, which helps protect natural resources and reduce pollution.

Water Conservation

Using water efficiently and reducing unnecessary waste to ensure enough clean water is available for people, nature, and future generations.





SUSTAINABILITY

AWARENESS



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101036505. This publication reflects only the author's view and the Research Executive Agency (REA) and European Commission cannot be held responsible for any use that may be made of the information it contains.