CLIMATE CHANGE & SUSTAINABILITY

Co-funded by the Erasmus+ Programme of the European Union

MODULE N°2

GREEN LABS

IRFEDD LiCA CentOfOrm Academy of Entrepreneurship municipio de lousada YOUNG AMBASSADORS

2026

OBJECTIVES & LEARNING BLOCKS

1. Understanding the impacts of climate change (p5)
2. Understanding implications and relevance of sustainable development goals (SDGs) and global sustainability transition (p13)
3. Recognize and interpret the main legal framework concerning sustainable development and green transition at EU and national levels
4. Elaborate on the correlation between digitalization and its support to green and circular transformation of processes and products

THE PROJECT

GREEN LABS PROJECT-*INTERNATIONAL LIVING LABS NETWORK FOR GREEN INNOVATION PROJECT*

- **GREEN LABS** is a European **Erasmus+ project** aimed at supporting the **green transition** by strengthening innovation and sustainability in **vocational education and training (VET)**.
- The project develops a **European network of local "living labs"** where stakeholders collaborate to design and test **territorial initiatives for ecological and circular transition**.
- It introduces a new professional profile – **Green Innovation Managers (GIM)** – trained to facilitate innovation processes and support sustainable projects in local ecosystems.
- The project also creates a **digital platform and support services** to connect labs, share knowledge, and enable cooperation among partners and stakeholders across Europe.

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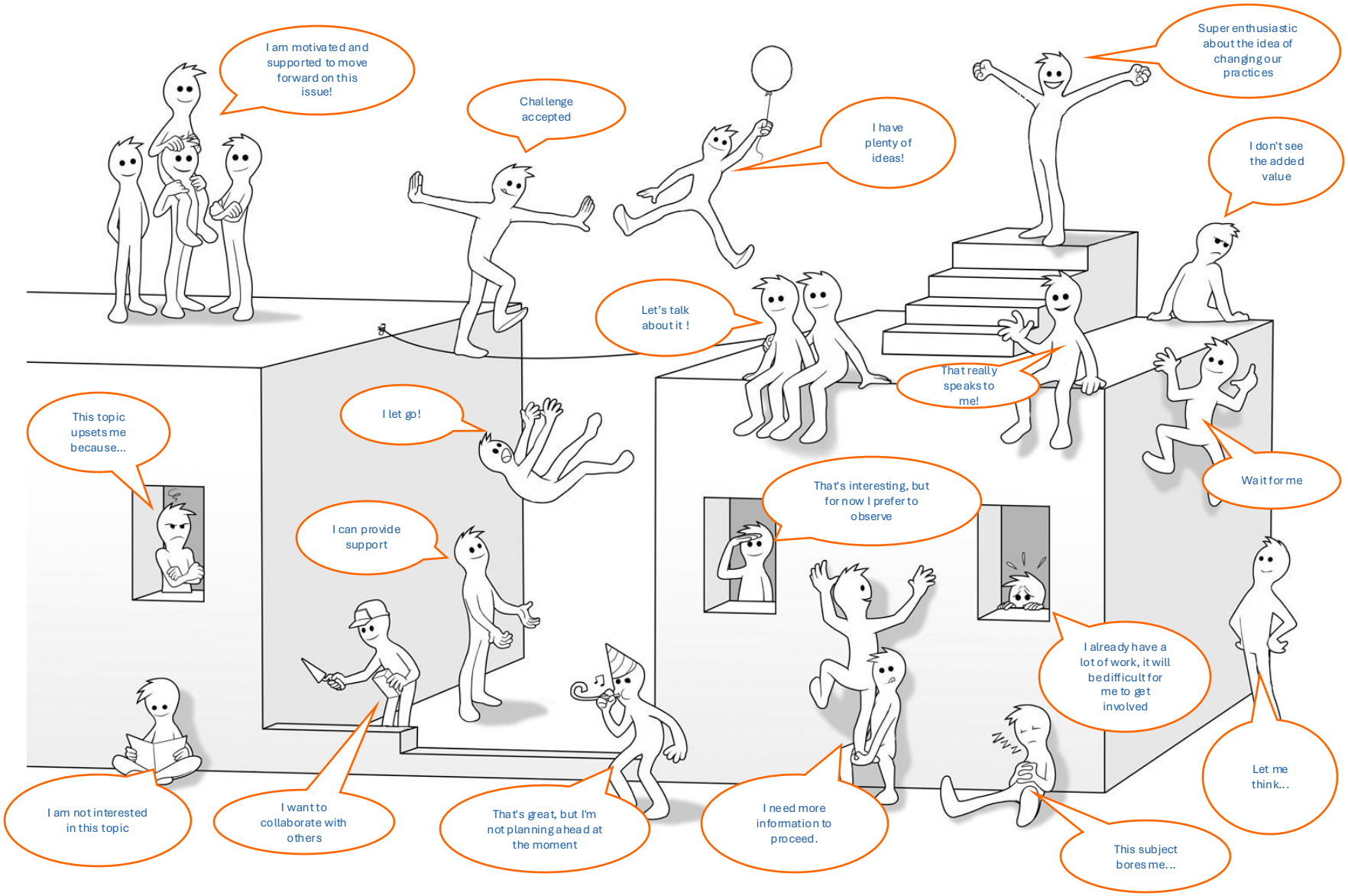
ICE BREAKER : WHICH CHARACTER ARE YOU TODAY ?



UNDERSTANDING THE IMPACTS OF CLIMATE CHANGE

TO START WITH

COLLECTIVE WORKSHOP : CLIMATE CHANGE CAUSES & CONSEQUENCES

Based on the provided pictures :

- ❑ Identify 2 causes of climate change
- ❑ Make connections between images to show direct and indirect cause-and-effect relationships
- ❑ Choose one impact/ consequence and relate it to your country/city/life
- ❑ Share briefly
- ❑ Suggest one possible action

Note for facilitator

Try to connect knowledge-->personal experience-->action

BRAINSTORMING TIME !

MAIN CLIMATE CHANGE CHALLENGES

Climate change affects the environment in many different ways, including rising temperatures, sea level rise, drought, flooding, and more. These events affect things that we depend upon and value, like water, energy, transportation, wildlife, agriculture, ecosystems, and human health.

Let's look at some of the effects climate change has on our resources and society : identify collectively the main challenges regarding these 5 topics:

- **WATER**
- **FOOD**
- **INFRASTRUCTURE**
- **HUMAN HEALTH**
- **BIODIVERSITY**

LEARN MORE

Note for facilitator

Ressources to use: "Main Climate Change Challenges »

KEY CONCEPT

CAUSES & CONSEQUENCES

Climate change is primarily driven by greenhouse gas emissions from human activities;

The main causes include fossil fuel use, deforestation and unsustainable land use;

Its impacts affect ecosystems, human health, food security and economies worldwide.

LEARN MORE

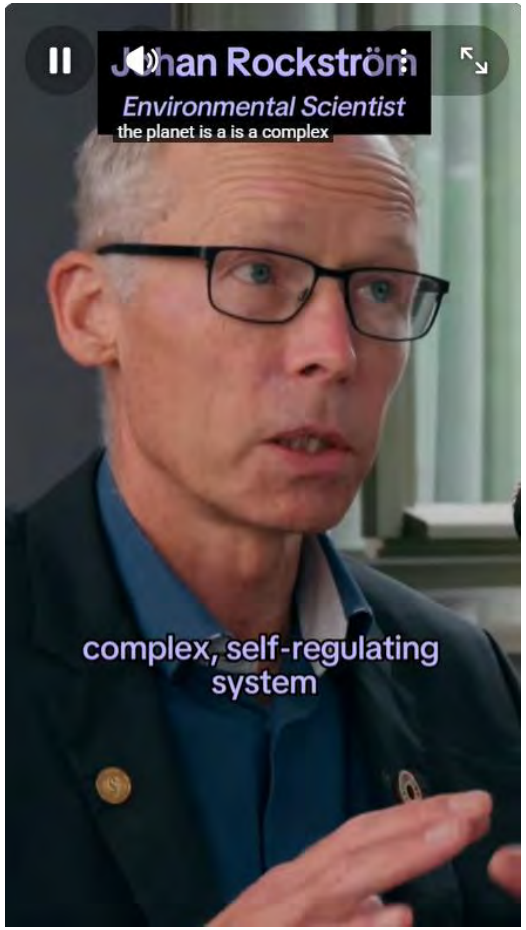
Self-Learning

PLANET BOUNDARIES

The original conceptualisation of the Planetary Boundaries framework was first published in 2009 by the ***Stockholm Relience Center***.

It was developed by an international team led by Johan Rockström and Will Steffen, marking a groundbreaking shift in sustainability science.

The framework identifies **nine critical Earth system processes**, defining a **"safe operating space"** for humanity to avoid irreversible environmental damage.



Click to watch the video

Reflection

What are these Planetary Boundaries ?
What evolution since 2009?

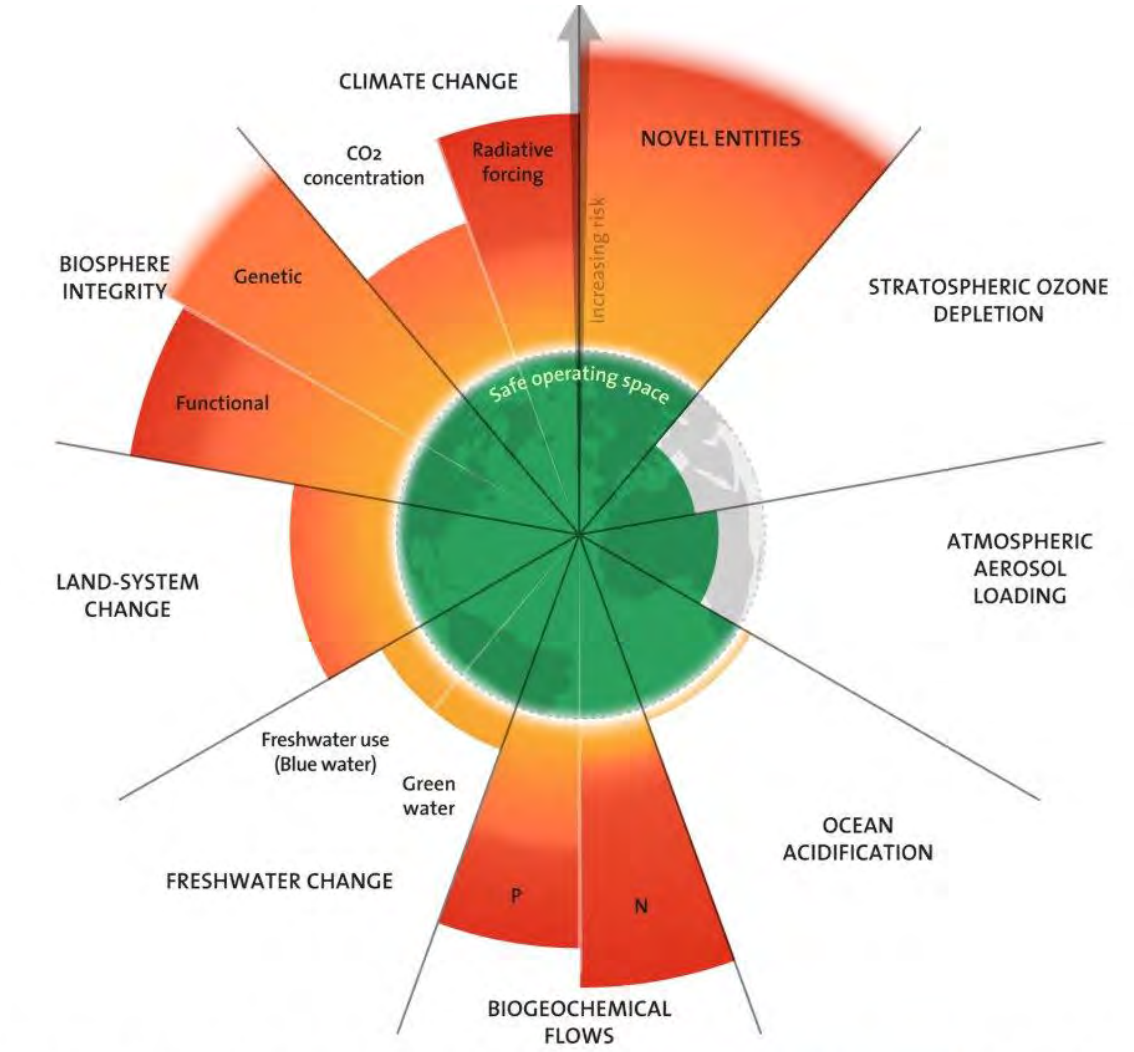
LEARN MORE

Click to watch the video

LEARN MORE

Self-Learning

PLANET BOUNDARIES



The 2025 update to the Planetary boundaries. Licensed under CC BY-NC-ND 3.0. Credit: "Azote for Stockholm Resilience Centre, based on analysis in Sakschewski and Caesar et al. 2025".

The 7th boundary reached in June 2025!

KEY CONCEPT

PLANET BOUNDARIES

The Planetary Boundaries framework defines the environmental limits within which humanity can safely operate;

Exceeding these boundaries increases the risk of irreversible environmental change.

UNDERSTANDING IMPLICATIONS & RELEVANCE OF SDGS AND GLOBAL SUSTAINABILITY TRANSITION

BRAINSTORMING TIME !

SUSTAINABLE DEVELOPMENT GOALS ?

- Individually, name 3 SDGs that come immediately to mind
- Share in groups and compare: Which SDGs did you choose? Why?

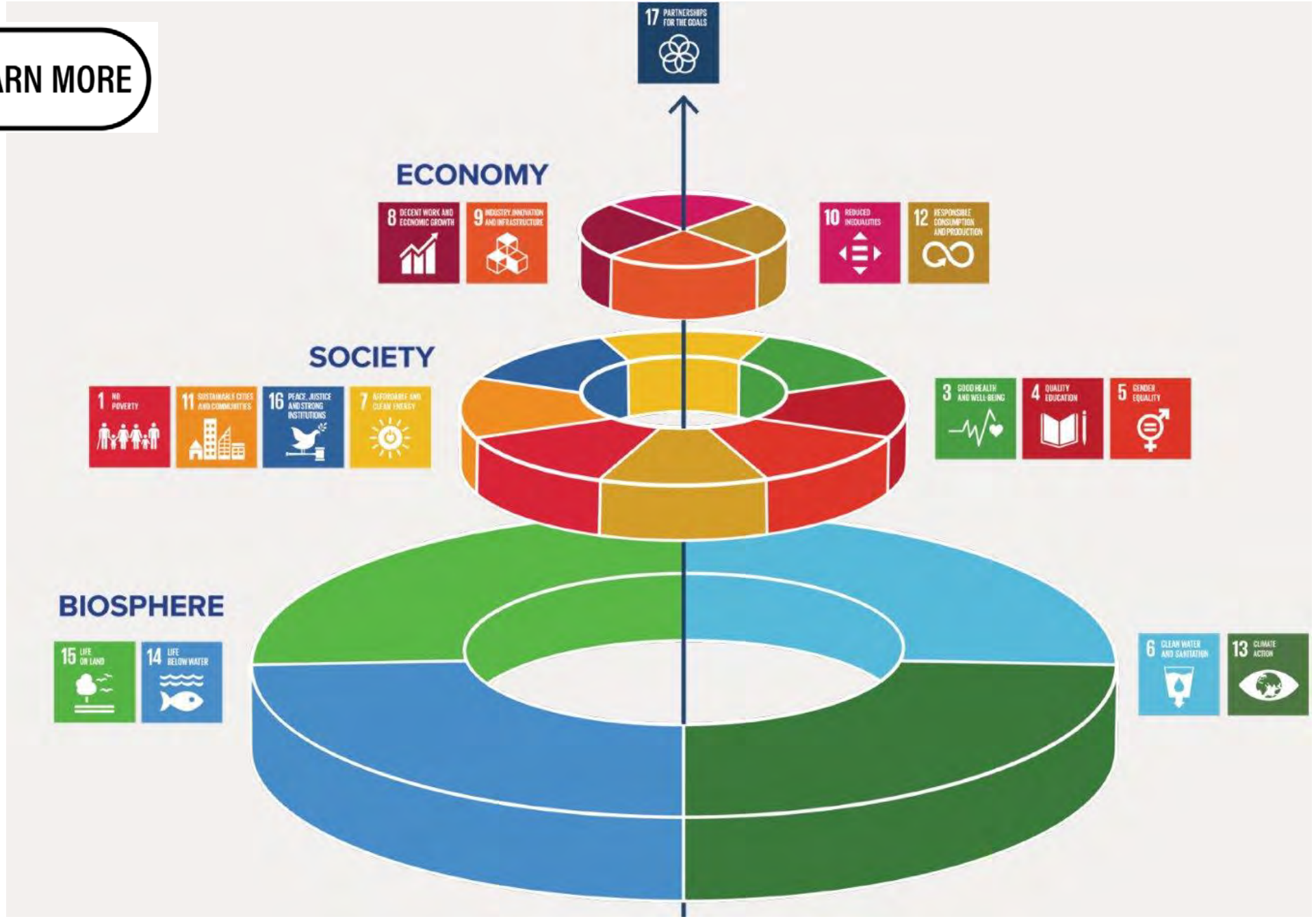
THE 17 GOALS | Sustainable Development

- Collectively, name each of the 17 SDGs and their main goal to shape together the global picture
- Reflect: are there similarities or differences?
- Which SDGs feel more relevant or possible to influence in your community/city/life?
- What makes them more actionable locally?

LEARN MORE

Click here to read the "Sustainable Development Report 2026" :

LEARN MORE



17 SDGs wedding cake - Stockholm Resilience Center

GREEN LABS PROJECT

LEARN MORE

HAVE WE MET ALL TARGETS?

Sustainable-development-report-2026 - Financing Sustainable Development to 2030 and Mid-Century

TO PRACTICE

GROUP EXERCISE

Have we met all targets? SDGs & Conflit

SUSTAINABLE DEVELOPMENT GOALS

In pairs or groups, discuss:

- ❑ How can conflicts affect progress on SDGs?
- ❑ Why is SDG progress not linear?

Choose one SDG and reflect:

- ❑ How could a conflict impact its progress (short and long term)?
- ❑ Share one example and one key insight with the group.

GREEN LABS PROJECT

KEY CONCEPT

HAVE WE MET ALL TARGETS?

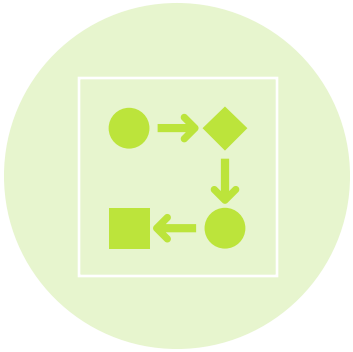
Global progress towards the SDGs remains uneven;

Climate change, conflicts and economic inequalities continue to slow implementation.

RECOGNIZE AND INTERPRET THE MAIN LEGAL FRAMEWORK CONCERNING SUSTAINABLE DEVELOPMENT AND GREEN TRANSITION AT EU & NATIONAL LEVELS

EU POLICY NETWORK

WHAT ARE THE MAIN POLICY FRAMEWORKS IN EU REGARDING CLIMATE CHANGE AND ENERGY?



HOW DO THESE FRAMEWORKS EVOLVE?

Self-Learning

Click here to read about the 2030 climate and energy framework - Consilium

Click here to read about Aligning the 2030 EU climate and energy policy framework to meet long-term climate goals

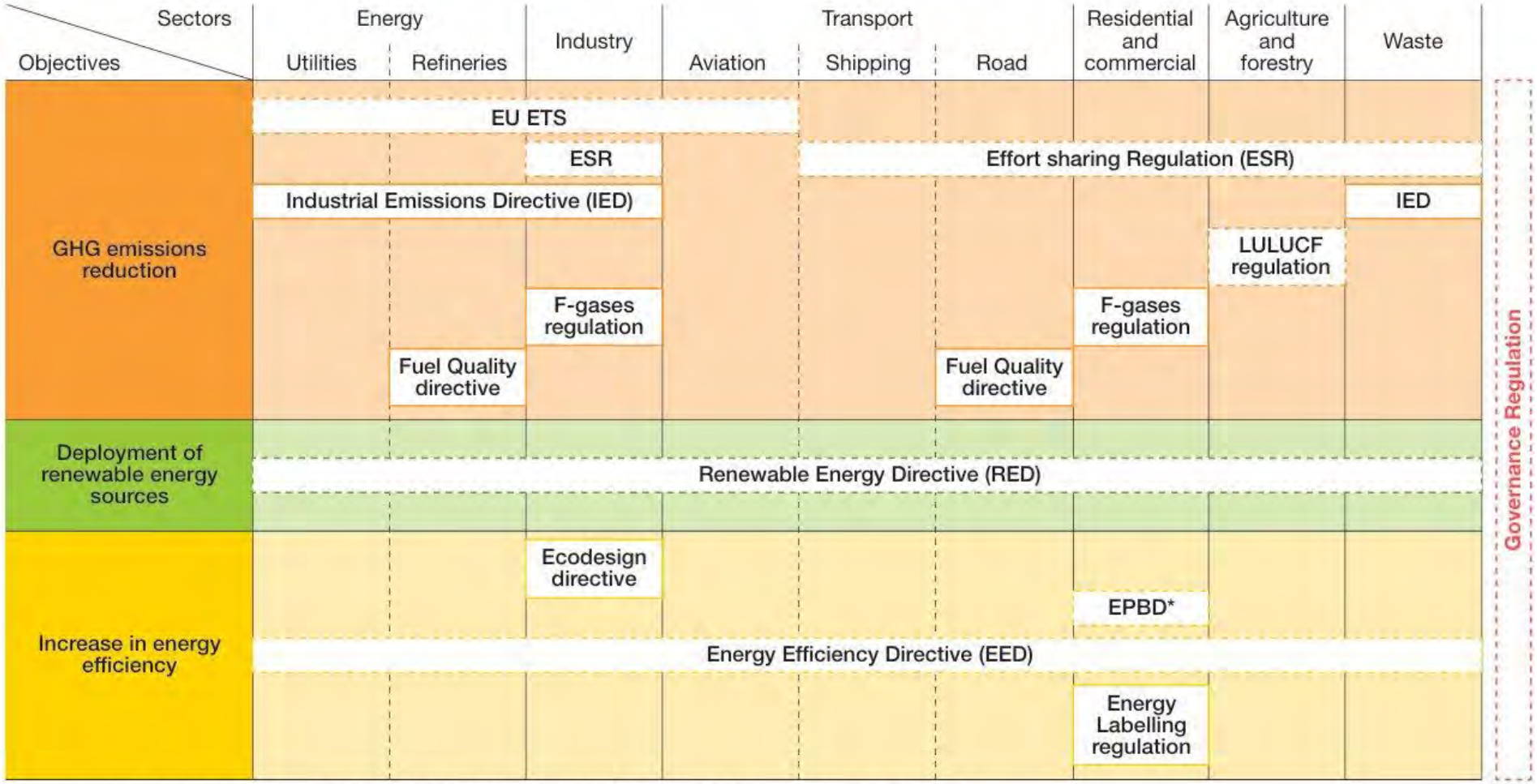
Click here to read about The Landscape of National Climate Framework Laws in Europe

LEARN MORE

FIGURE 5. MAPPING EU LEGISLATIONS IN THE 2030 CLIMATE AND ENERGY POLICY FRAMEWORK

FIGURE 5. MAPPING EU LEGISLATIONS IN THE 2030 ENERGY AND POLICY FRAMEWORK

EU legislations in the 2030 climate and energy framework are strongly interrelated: several legislative texts apply to each sector and several texts aim to achieve each EU objective



Interpretation of the graph: The different objectives in the left-end column are to be achieved through the legislative texts in the frame with the same color. Those legislative texts apply in the sectors in the respective columns.

Source: I4CE, 2018, based on Ecologic, 2014

Click to watch the video

TO RECAP

EU POLICY NETWORK

The European Green Deal is the EU's roadmap towards climate neutrality by 2050;

Key policy frameworks support decarbonization, biodiversity protection and the circular economy.

MAIN CHALLENGES OF GREEN TRANSITION

- **Prioritize renewable energies and reduce the use of fossil fuels** (which are highly polluting and emit GHG)
- **Reducing energy consumption by businesses and individuals** (office buildings, factories, homes, transportation)
- **Reducing waste production and the use of natural resources** (circular economy, less meat in our diets, etc.)
- **Adapting to the risks of climate change** (erosion, droughts, floods, etc.)
- **Preserving & regenerating biodiversity**

BRAINSTORMING TIME !

ADAPTATION ? MITIGATION ?

When talking about climate issues, main levers for action are:

- **MITIGATION**
- **ADAPTATION**

What differencies?

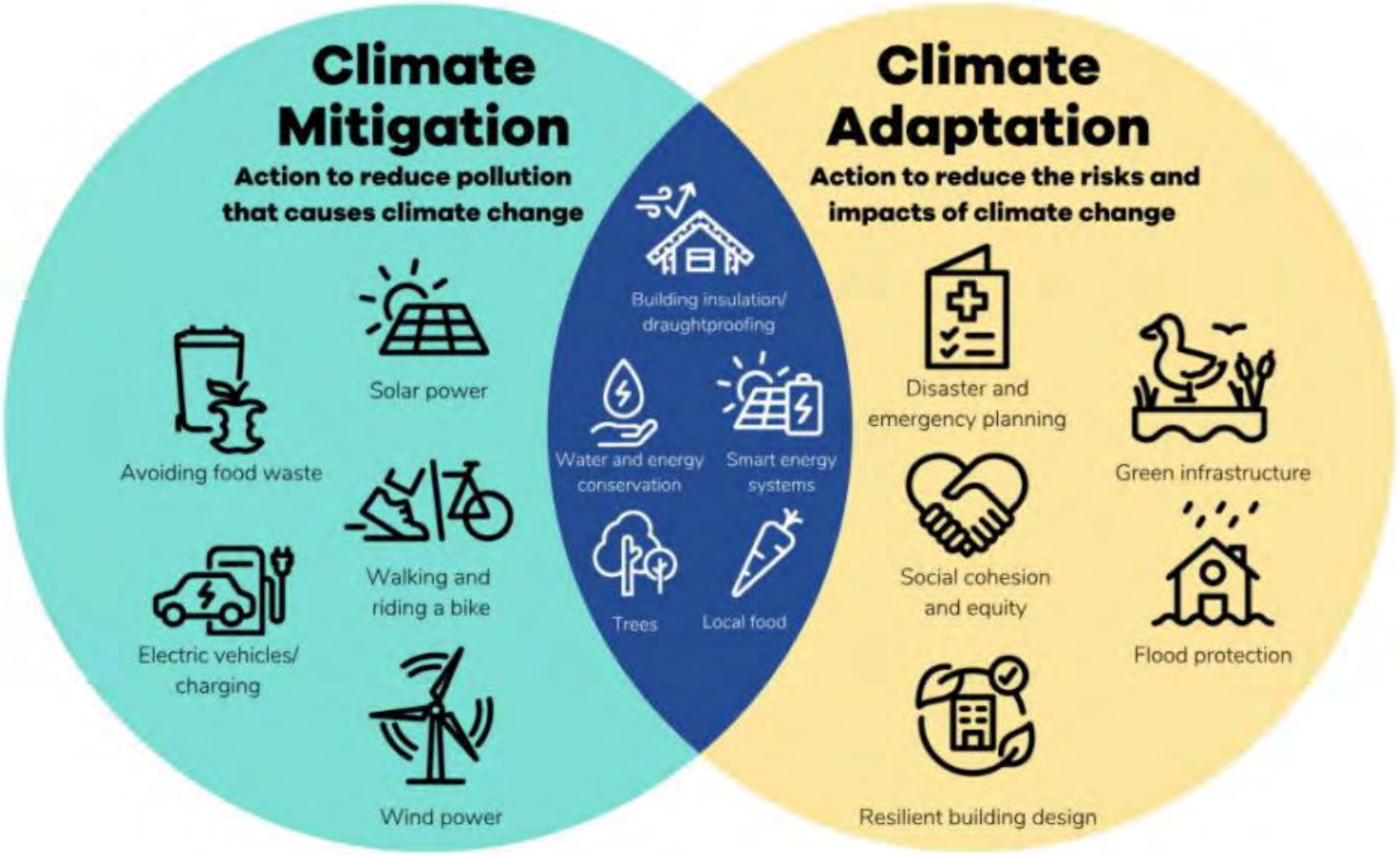
What are concrete examples for each type of action?

Note for facilitator

Use a collaborative wall if the exercise is done in a group

TO GO FURTHER

ADAPTATION ? MITIGATION ?



'Climate risk mitigation' is the practice of adjusting to actual or expected changes to reduce harm, and can be equated to 'climate change adaptation'. Diagram: Meri Bek City Council

MITIGATION

Reducing the use of individual combustion engine vehicles (using public transport, shared vehicles, electric vehicles, etc.)

Energy efficiency in buildings (reducing consumption, using less energy-intensive systems)

Reducing/eliminating the use of plastic (eco-design, reuse)

Saving and financing sustainable projects (banks, individual savings, investments, etc.)

Reducing/eliminating the use of chemicals (organic farming), etc

ADAPTATION

Better insulation of buildings (limits the effects of heat waves/humidity)

Maintenance and use of vegetation adapted to high temperatures

Urban planning that incorporates more local vegetation (vs. heat islands)

Reuse of wastewater for irrigation and other uses (to prepare for future restrictions on water use in cities)

Develop: agroforestry, agroecology, agricultural diversification (resilience & food sovereignty)

Densify housing (use of already built-up land)

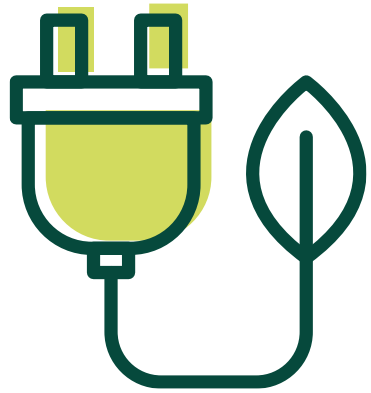
TO PRACTICE

ROLE PLAY: CLIMATE ACTION

Form groups of 3–4. Each group chooses one role: citizen, business, farmer, city planner

Task:

- ❑ **Think of one climate problem related to your role**
- ❑ **Propose :**
  - **1 mitigation action**
  - **1 adaptation action**
- ❑ **Share in 30–60 seconds with the group**



Quick reflection: Which idea is most practical and useful ?

ELABORATE ON THE CORRELATION BETWEEN DIGITALIZATION AND ITS SUPPORT TO GREEN AND CIRCULAR TRANSFORMATION OF PROCESSES AND PRODUCTS

BRAINSTORMING TIME !

DIGITAL TRANSITION

- Going digital – good or bad for the climate?
- What are the benefits and risks?
- What is the global carbon footprint of digital uses?

Self-Learning

Click here to know more about digital technologies and the environment

Click here to know more about the climate effect of digitalisation

TO RECAP

DIGITAL TRANSITION

Digital technologies can support sustainability through efficiency and innovation;

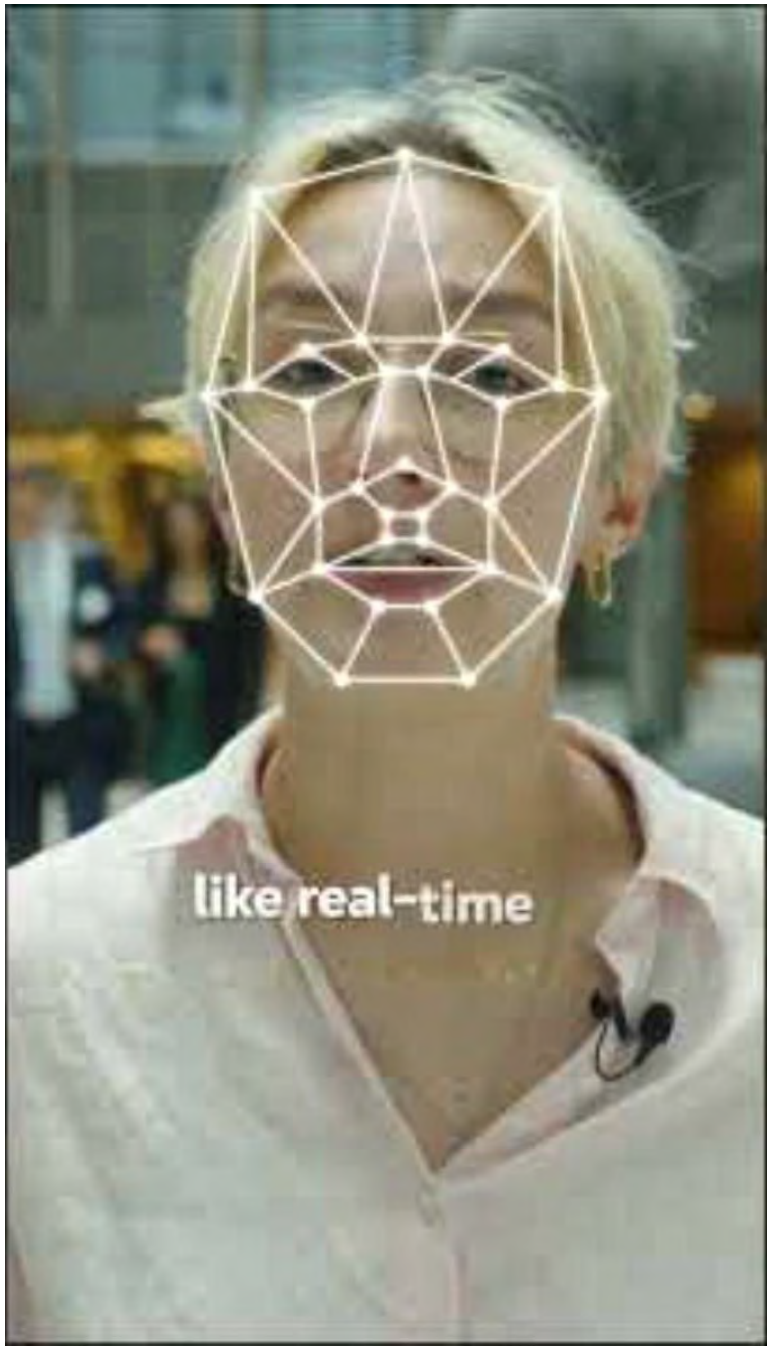
However, they also have environmental impacts, including energy consumption and electronic waste.

EUROPEAN AI ACT

Click to read

The use of artificial intelligence in the EU is regulated by the AI Act, the world's first comprehensive AI law. Find out more.

Click to watch the video



TO RECAP

EUROPEAN AI ACT

The AI Act is the first-ever legal framework on ARTIFICIAL INTELLIGENCE, which addresses the risks of AI and positions Europe to play a leading role globally

WHO ? WHEN ?

Launched by the EU Commission in April 2021, the AI Act came into force on July 12, 2024, after 3 years of negotiations.

OBJECTIVE

To promote the development of trustworthy AI, ensuring fundamental rights, security, and ethical principles, while encouraging and strengthening investment and innovation in AI across the EU.

GOUVERNANCE

The AI Act is based on a two-tier institutional architecture–national and European–to ensure harmonized enforcement of regulations across the Union.

TO RECAP

EUROPEAN AI ACT

Why is it relevant?

- **The AI Act establishes a common legal framework for trustworthy AI in the EU;**
- **It aims to balance innovation with safety, transparency and fundamental rights.**

EUROPEAN AI ACT

Click to watch the video

SELF-ASSESSMENT QUIZ

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q1 What are the two primary human activities driving climate change ?

A) Renewable energy use and recycling

B) Fossil fuel use and deforestation

C) Urban planning and digitalization

D) Biodiversity conservation and circular economy

Click any answer to see if you got it right.

Quiz: **INTRODUCING THE PROFESSIONAL PROFILE OF THE GIM**

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Next Question →

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q2 "The Planetary Boundaries framework defines 9 critical Earth system processes to avoid irreversible environmental damage."

A) True

B) False

Click any answer to see if you got it right.

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q2 "The Planetary Boundaries framework defines 9 critical Earth system processes to avoid irreversible environmental damage."

A) True

B) False

Next Question →

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q3 Which of the following is a direct consequence of climate change on human society?

A) Increased use of public transport

B) Rising sea levels and extreme weather events (e.g., droughts, floods)

C) Growth in digital innovation

D) Expansion of fossil fuel industries

Click any answer to see if you got it right.

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Next Question →

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q4 How many Sustainable Development Goals (SDGs) are there in total?

A) 5

B) 10

C) 17

D) 20

Click any answer to see if you got it right.

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q4 How many Sustainable Development Goals (SDGs) are there in total?

A) 5

B) 10

C) 17

D) 20

Next Question →

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q5 Which SDG is most directly linked to combating climate change and its impacts?

A) SDG 1: No Poverty

B) SDG 13: Climate Action

C) SDG 4: Quality Education

D) SDG 8: Decent Work and Economic Growth

Click any answer to see if you got it right.

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

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Next Question →

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q6 Why is progress toward the SDGs described as "non-linear" in the training?

A) Because all goals are already achieved.

B) Due to conflicts, economic inequalities, and climate change slowing implementation.

C) Because digitalization has solved most sustainability challenges.

D) Because only developed countries are responsible for SDG progress.

Click any answer to see if you got it right.

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Next Question →

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q7 What is the primary objective of the European Green Deal?

A) To increase fossil fuel subsidies.

B) To achieve climate neutrality in the EU by 2050.

C) To ban all digital technologies in Europe..

D) To reduce the number of SDGs to 10.

Click any answer to see if you got it right.

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Next Question →

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q8 Which of the following is a mitigation action (not adaptation) for climate change?

A) Building flood barriers to protect cities.

B) Developing heat-resistant crops.

C) Reusing wastewater for irrigation.

D) Reducing the use of individual combustion-engine vehicles (e.g., switching to electric cars).

Click any answer to see if you got it right.

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Next Question →

SELF-ASSESSMENT QUIZ

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q9 How can digitalization support green and circular transformation?

A) By ignoring planetary boundaries.

B) By replacing all human jobs with robots.

C) Through efficiency, innovation, and optimized resource management (e.g., smart grids, AI for waste reduction).

D) By increasing energy consumption in data centers.

Click any answer to see if you got it right.

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Next Question →

Quiz: **CLIMATE CHANGE & SUSTAINABILITY**

Q10 What is the main risk associated with digitalization in the context of sustainability?

A) Energy consumption and electronic waste (e-waste).

B) Reduced collaboration among stakeholders.

C) Decreased use of renewable energy.

D) Overachievement of SDGs.

Click any answer to see if you got it right.

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THANK YOU FOR YOUR PARTICIPATION!

GREEN LABS PROJECT

The GREEN LABS project aims to support and stimulate the green transition by promoting innovation and greening of VET systems through internationalization, exchange of practices, and knowledge sharing among partners, in accordance with the Osnabrück Declaration of 2020 on vocational education and training for sustainable competitiveness, social fairness and resilience.

GREEN LABS