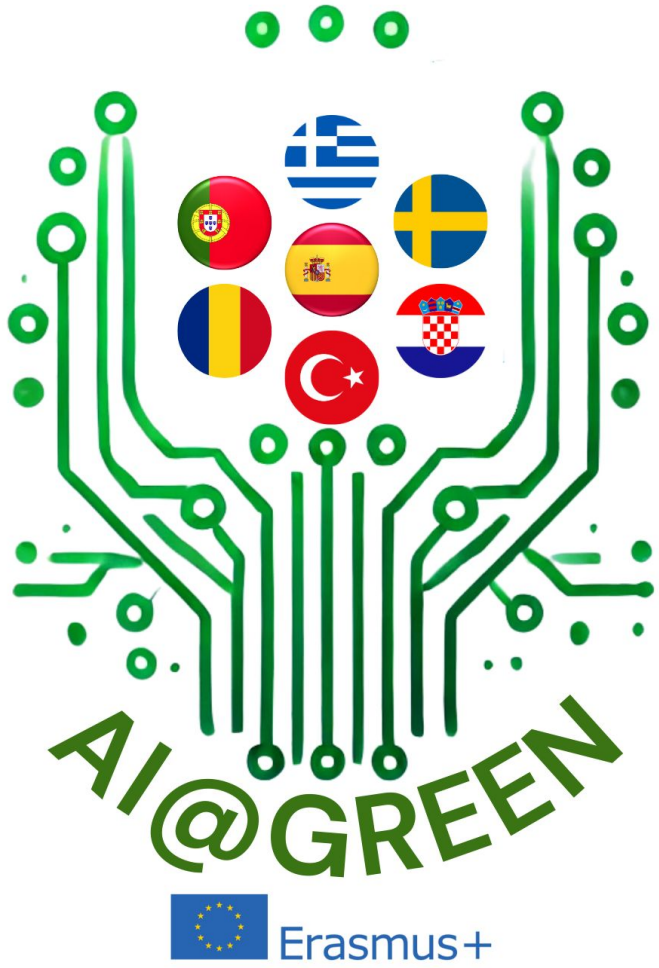
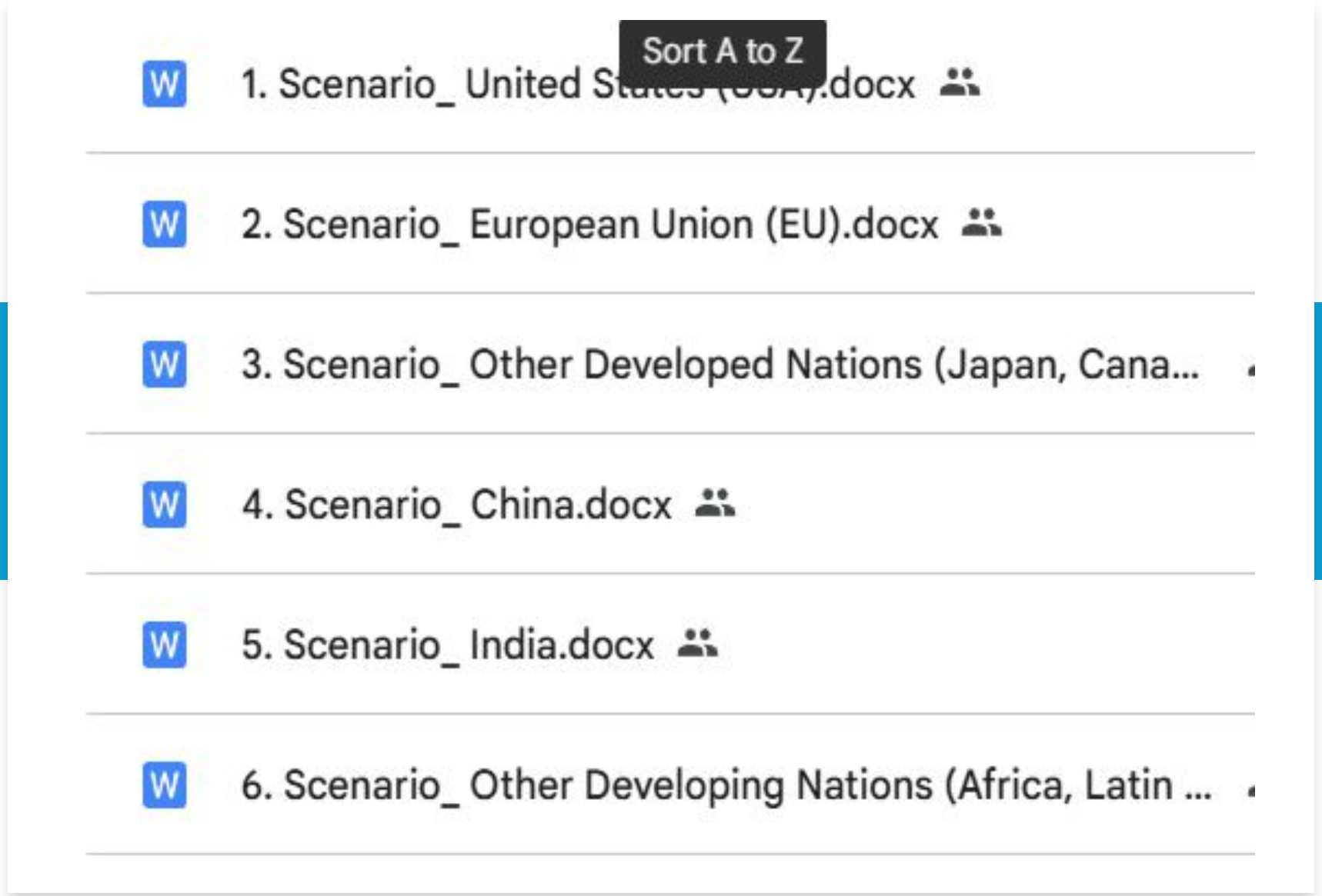



# Building Climate Resilience: Exploring Climate Interactive Simulation Tools

AI@Green: Harnessing Artificial Intelligence and Interactive Tools for Climate Change Mitigation and Gaining Green Skills

Project Number:
2024-1-ES01-KA220-SCH-000249133

7/11/2025


Sort A to Z
1. Scenario_ United States (USA).docx
2. Scenario_ European Union (EU).docx
3. Scenario_ Other Developed Nations (Japan, Cana...
4. Scenario_ China.docx
5. Scenario_ India.docx
6. Scenario_ Other Developing Nations (Africa, Latin ...

C-Roads

## 2. Scenario: European Union (EU)

**Task for students:**

1. Read the information about the assigned region.
2. As a team, decide:
    - when your emissions will reach their peak,
    - when the reduction will begin,
    - how fast you will reduce emissions (in %),
    - how much forest you will protect,
    - how many new forests you will plant.
3. Prepare the data for C-ROADS.
4. Check the projected global temperature increase by the year 2100.
5. Write down the result and prepare arguments for the “climate negotiations.”
6. Students record the result (e.g., +2.7 °C).
7. Then the teams negotiate and agree on a new joint plan that would keep the temperature increase below 1.5 °C.
8. Students compare the old and new scenarios, analyze the changes, and conclude what is most important to save the climate.

# Example of the Scenario

- Some countries (e.g., Germany, Denmark) already produce more than 50% of their electricity from renewable sources.

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**Why:**

The EU acts quickly and decisively, investing in renewable energy sources and reforestation.

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**Discuss:**

- When could the EU completely stop using coal and oil?
- What annual emission reduction rate is achievable (3–6%)?
- What share of forests can be preserved or increased?
- Why is it important for wealthy regions to take action first?
- How can the EU help other regions achieve similar goals?

**Context:**

The EU has the most ambitious climate plan in the world — the “European Green Deal.” Many countries already use renewable energy sources and promote sustainable transport.

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**Role in the world:**

- Around 450 million inhabitants.
- Emissions make up about 7% of global emissions, but the EU has historically been a major polluter.
- It has the most advanced climate policies in the world.

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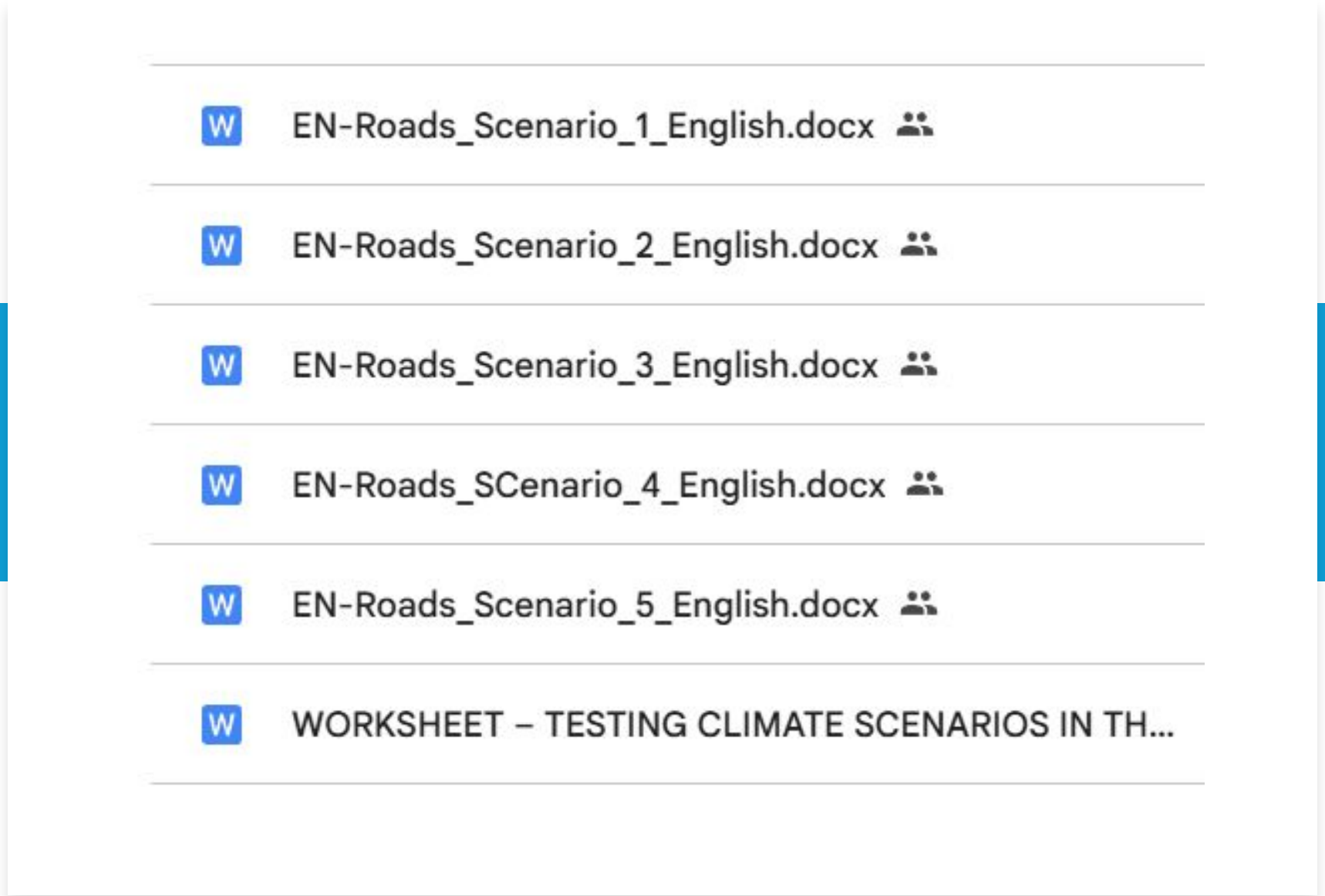
**Current situation:**

- Goal: reduce emissions by 55% by 2030 and achieve climate neutrality by 2050.
- Strong transition to renewable energy sources (wind, solar, hydropower).
- Significant subsidies for afforestation and nature conservation.

| | Emission Peak Year | Reductions Begin Year | Annual Reduction Rate | Prevent Deforestation | Promote Afforestation |
|---|---|---|---|---|---|
| European Union | | | | | |


EN-Roads_Scenario_1_English.docx
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EN-Roads_Scenario_3_English.docx
EN-Roads_SCenario_4_English.docx
EN-Roads_Scenario_5_English.docx
WORKSHEET – TESTING CLIMATE SCENARIOS IN TH...

# En- Roads

## EN-Roads – Scenario 1

When students open EN-Roads, the tool automatically shows the baseline scenario ("Business as Usual"). At the bottom of the screen, they see graphs — but the numbers are abstract to them (°C, $GtCO_2$, etc.). That's why, as the teacher, you translate the results into everyday consequences using this table:

| EN-Roads Data | What It Means for the World (Explain to Students) |
|---|---|
| 🌡️ +3.3 °C global warming by 2100 | Many more heat waves, wildfires, droughts, and floods. |
| 📈 $CO_2$ continues to rise | Air becomes more polluted, oceans acidify. |
| 🧊 Loss of ice and snow | Glaciers disappear, polar bears lose their habitat. |
| 🌊 Sea level rise | Coastal cities (e.g., Venice, Rotterdam, Dhaka) are flooded. |
| 🌾 Less food | Droughts reduce yields, food prices rise. |
| 👥 Climate migration | People move from affected regions (Africa, Asia). |

# Example of the Scenario

## Example of the Business as Usual Scenario

The Earth continues to use coal, oil, and gas as it does today. There are no major changes in behavior or policy. If nothing changes, the planet's temperature will rise by more than 3.5°C by the end of the century. $CO_2$ emissions keep increasing (over 60 Gt per year by 2070). Sea level rise: 0.7–1 m by the end of the century. Ice and snow: The Arctic could be ice-free in summer by around 2050. Climate patterns: extreme heatwaves, powerful floods, and long droughts.

This means that some parts of Africa and Asia will turn into deserts, the Mediterranean will experience many more wildfires, and sea levels will rise enough to submerge parts of coastlines and islands. In northern regions (Canada, Russia), there might be more arable land — but globally many people will lose their homes.

## What Students Can Show

🔴 Red zones = very hot areas
💧 Blue = flooded coastlines
🌾 Yellow = drought-stricken regions
🌲 Green = areas with more vegetation

## What the Map Looks Like

Students can use a paper world map template.

On the map, they mark:

Europe – Southern Europe (Spain, Italy, Croatia, Greece) suffers from long droughts and wildfires. Northern Europe has more rain and floods.

Africa – Sub-Saharan areas turn into deserts; food and water shortages occur.

Asia – South and Southeast Asia face floods and hurricanes; Bangladesh and Indonesia lose coastal cities.

North America – Wildfires in California and Canada; destructive storms on the East Coast.

South America – The Amazon turns into savanna.

Oceans and islands – Small island nations (Kiribati, Maldives) disappear under the sea.

Migration flows – Arrows showing the movement of people.

## Consequences

- Loss of agricultural land
- Millions of climate refugees
- Rising prices of food and water
- Extinction of numerous plant and animal species

# 🌍 WORKSHEET – TESTING CLIMATE SCENARIOS IN THE EN-ROADS SIMULATOR

### 🧩 Activity Goal

Using the **EN-Roads** simulator, we will explore how different decisions in energy, transport, and environmental protection can change the future of our planet.
At the end, we will compare the actual results with those we predicted on our *map of the future*.

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### 🧭 1. Group Information

| | |
|---|---|
| **Group / Student Name:** | |
| Selected Scenario: | ☐ Business as Usual<br>☐ Renewable Revolution<br>☐ Technology and Efficiency<br>☐ Global Cooperation<br>☐ Delayed Action |

# THE EN-ROADS CLIMATE WORKSHOP

- https://www.climateinteractive.org/offerings/
- https://www.climateinteractive.org/climate-action-simulation/cas-materials/
- https://www.climateinteractive.org/en-roads/en-roads-resources/

The En-ROADS Climate Solutions Simulator is used to run engaging, interactive events all over the world. Currently, we have facilitators from dozens of countries who are facilitating En-ROADS events across the globe. In order to support our international base of users, we are striving to make the simulator available in as many languages as possible. Currently, the En-ROADS Simulator is available in:

- **English**
- **Deutsch (German)**
- **Español (Spanish)**
- **简体中文 (Simplified Chinese)**
- **繁體中文 (Traditional Chinese)**
- **Português (Portuguese)**
- **Kiswahili (Swahili)**
- **Nederlands (Dutch)**
- **Norsk Bokmål (Norwegian)**
- **Slovenščina (Slovenian)**
- **Čeština (Czech)**
- **Türkçe (Turkish)**
- **Български (Bulgarian)**
- **Italiano (Italian)**
- **العربية (Arabic)**
- **Français (French)**
- **日本語 (Japanese)**
- **Русский (Russian)**
- **עברית (Hebrew)**
- **فارسی (Persian)**
- **हिंदी (Hindi)**

# Stella

- https://www.iseesystems.com/store/products/stella-online.aspx
- Tutorial: https://youtu.be/qgdKmwG0Mzg?si=0uENvuMZ8c5It1-t