



BE SURE  
TO WASH YOUR  
HANDS AND ALL  
WILL BE WELL.

COVID-19

RECESSION

CLIMATE  
CHANGE

BIODIVERSITY  
COLLAPSE

*The world is only as resilient as  
the least resilient country and person*

# Alliance of Excellence for Research and Innovation on Aephoria (AE4RIA)

[www.ae4ria.org](http://www.ae4ria.org)

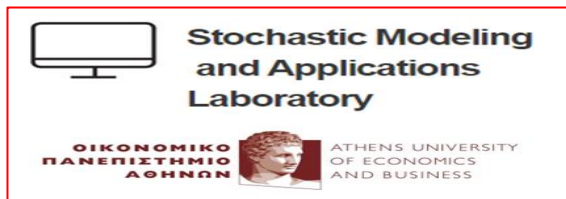
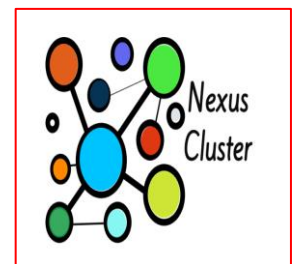
Professor Dr. Phoebe Koundouri [www.phoebekoundouri.org](http://www.phoebekoundouri.org)

Athens University of Economics & Business and Denmark Technical University

Founder & Scientific Chair AE4RIA

President, European Association of Environmental and Resource Economists

Fellow, World Academy of Art and Science



# Alliance of Excellence for Research and Innovation on Aephoria (AE4RIA) [www.ae4ria.org](http://www.ae4ria.org)



200 researchers and 500 million (25 year funding)

## Research and Innovation Projects Global Initiatives

## Innovation Acceleration Deep Demonstration

## Education & Training Science-Policy Interface



**EIT Climate-KIC**  
We are Europe's leading climate innovation initiative

- >€1.5bn capital raised in external investment by our start-ups
- >1800 climate-positive companies incubated
- >10000 full-time jobs created through our community
- >450 partners

**SDG Academy**  
Free educational resources from the world's leading experts on sustainable development

**ΟΙΚΟΝΟΜΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ**  
ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS  
MSc in Law and Economics in Energy Markets

**EIT Climate-KIC Maritime Themed Accelerator**  
Expression of Interest

Our Vision: To Become a Global Initiative for the Decarbonization and Adaptation to Climate Change for the Marine Sector

**Circular Learning Hub**  
A learning hub for the engagement and ecosystem transition towards circular thinking

- an awareness-intention-action path of intervention
- fostering problem-owners in the ecosystem (firms, investors, citizens, policy makers, regulators, universities, associations, etc.) to a deeper understanding and involvement in the circular thinking
- testing on a defined group of investors and entrepreneurs a multi-sensor and multi-virtual experiment

erc  
European Research Council  
Supporting top researchers from anywhere in the world

HORIZON 2020

eit  
European Institute of Innovation & Technology  
A body of the European Union

**Pioneers**  
CALLING ALL CLIMATE INNOVATORS!

**THE FOURTH SUSTAINABILITY SUMMIT FOR SOUTH-EAST EUROPE AND THE MEDITERRANEAN**  
October 1st & 2nd, 2020  
Phoebé Koundouri  
President-elect, European EIT  
Professor, Athens University of Economics & Business



## Global Climate Hub

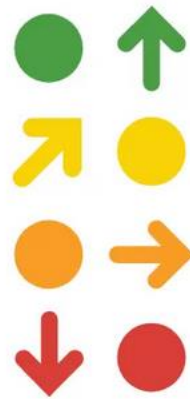


Professor Phoebe Koundouri  
Athens University of Economics and Business  
Athena Information Technologies Research Center  
Denmark Technical University

### MISSION

Recognizing the global climate crisis and the need for governments worldwide to take immediate decisive action to reduce the impact of climate change, the **SDSN Global Climate Hub** will provide science-based advice for combating the aggravating climate crisis and prevent further deterioration.

**SDSN Global Climate Hub** will use all extensive data, knowledge and technologies provided by experts in various fields to implement country-specific action plans to be adopted and reinforced by society.



# SUSTAINABLE DEVELOPMENT REPORT 2022

SDG Index and Dashboards

From Crisis to Sustainable Development:  
the SDGs as Roadmap to 2030 and Beyond

SDG 13

## Climate action

### Displaying Ratings

Ratings provide a visual representation of a country's performance on the SDG.

### Legend

Click on a country to see its performance.

- SDG achieved
- Challenges remain
- Significant challenges remain
- Major challenges remain
- Information unavailable

### Description

Take urgent action to combat climate change and its impacts.

### Indicators

Click on an indicator to visualize it on the map.

CO<sub>2</sub> emissions from fossil fuel combustion and cement production

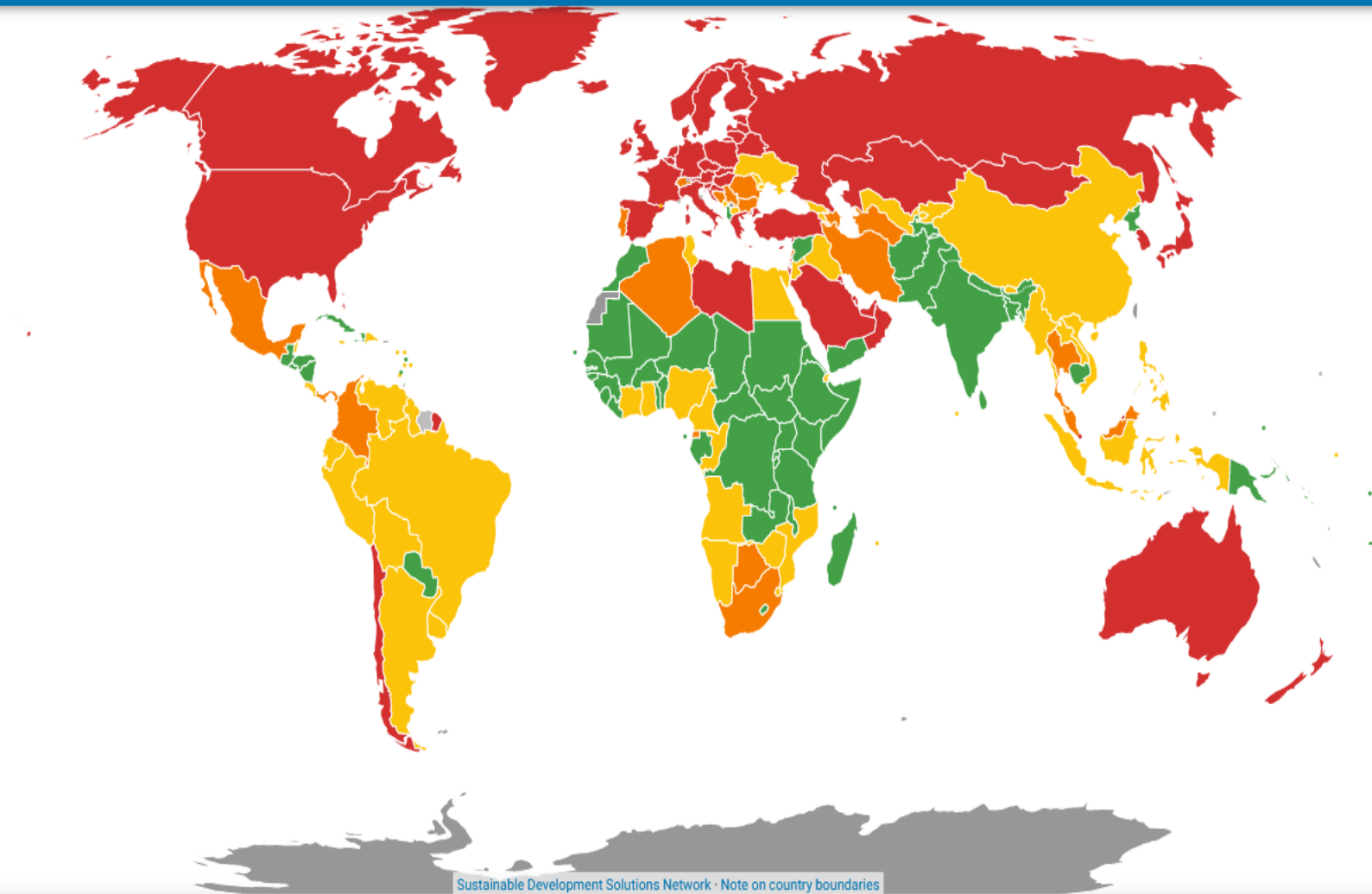
CO<sub>2</sub> emissions embodied in imports

CO<sub>2</sub> emissions embodied in fossil fuel exports

### OECD-only Indicators

Click on an indicator to visualize it on the map. These indicators are only used for OECD countries.

Carbon Pricing Score at EUR60/tCO<sub>2</sub>



★ Ratings ↗ Trends

Sustainable Development Solutions Network · Note on country boundaries

Select one of the SDGs to see it on the map or [display the overall scores](#)



SDG 13  
**Climate action**

**Displaying Trends**  
Trends indicate whether a country is on track to achieve the SDG by 2030.

**Legend**  
Click on a country to see its performance.

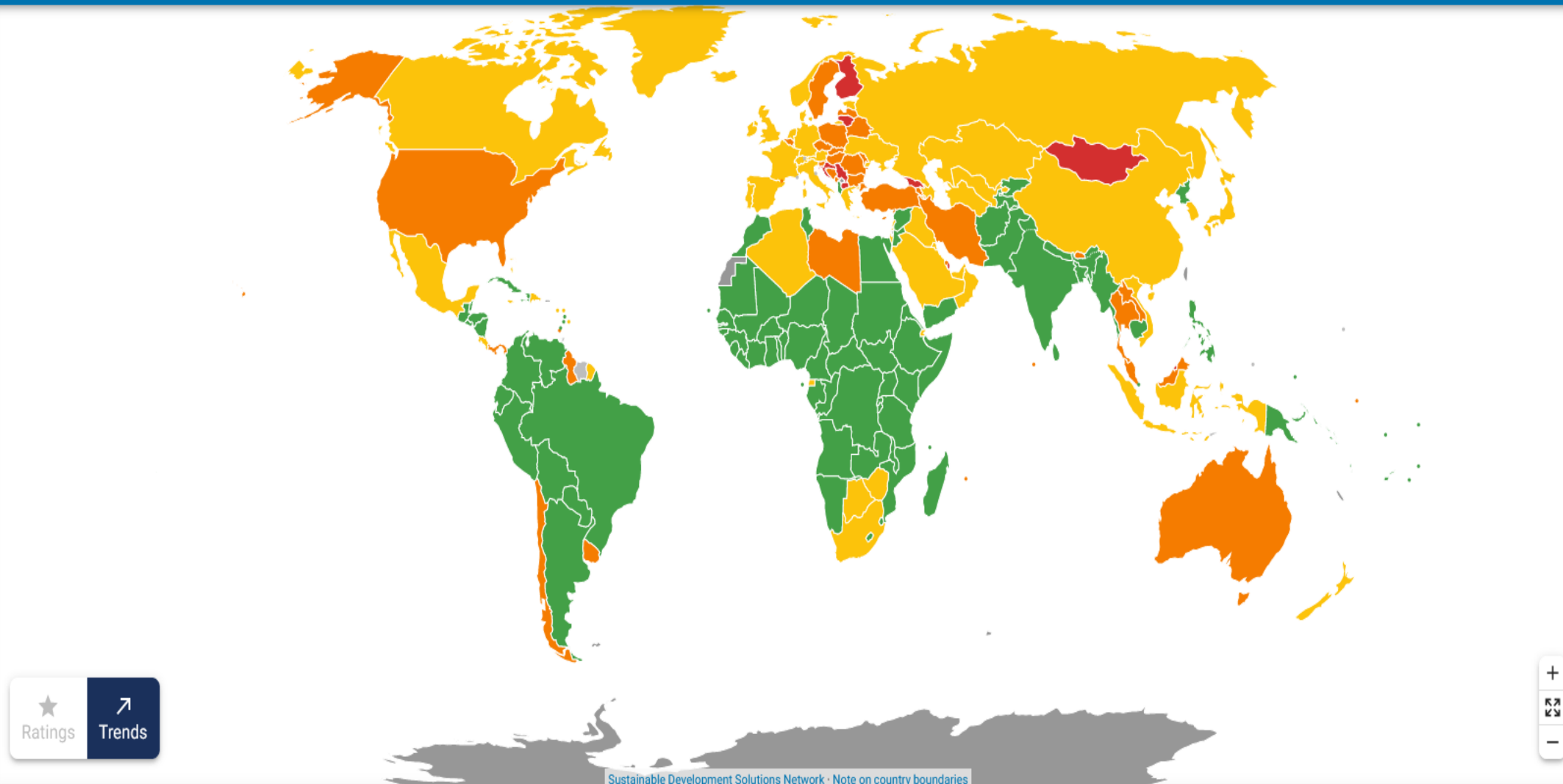
- On track or maintaining SDG achievement
- Moderately improving
- Stagnating
- Decreasing
- Trend information unavailable

**Description**  
Take urgent action to combat climate change and its impacts.

- Indicators**  
Click on an indicator to visualize it on the map.
- CO<sub>2</sub> emissions from fossil fuel combustion and cement production
  - CO<sub>2</sub> emissions embodied in imports
  - CO<sub>2</sub> emissions embodied in fossil fuel exports

**OECD-only Indicators**  
Click on an indicator to visualize it on the map. These indicators are only used for OECD countries.

Carbon Pricing Score at EUR60/tCO<sub>2</sub>



★ Ratings ↗ Trends

+  
↔  
-

Sustainable Development Solutions Network · Note on country boundaries

Select one of the SDGs to see it on the map or [display the overall scores](#)



# Race to Net Zero: Carbon Neutral Goals after COP26

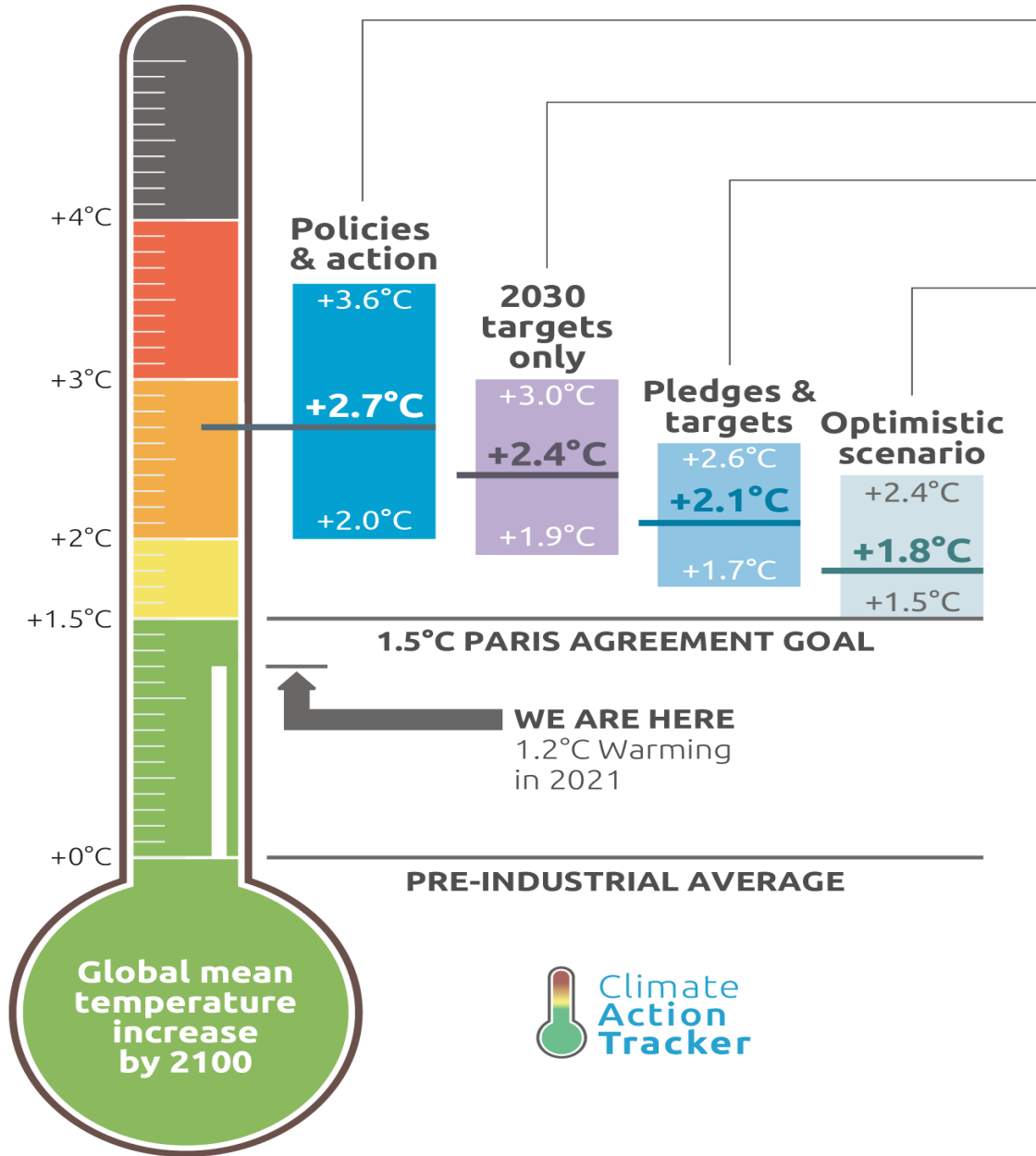
Figure 1: Net zero targets – 126 countries have set goals to decarbonize their economies



- Stronger commitments to reduce emissions and to keep global temperature rise to 1.5°C.
- 40 countries 2050/China 2060/India 2070
- US and China to continue Climate Negotiations
- From the projected 4 °C faced before Paris, and the 2.7 degrees before Glasgow, we have now edged towards 2-1.8°C
- 450 Business and Financial Institutions coalition worth \$130 trillion vows to put climate at heart of finance
- Global standards body takes aim at company 'greenwashing' claims
- 100 countries make new pledges to cut methane and 133 save forests
- Ensuring carbon market integrity
- Developed countries confirm commitment \$100 billion goal a year for Climate Mitigation and Adaptation in developing countries







- Policies & action**  
Real world action based on current policies
  - 2030 targets only**  
Full implementation of 2030 NDC targets\*
  - Pledges & targets**  
Full implementation of submitted and binding long-term targets and 2030 NDC targets\*
  - Optimistic scenario**  
Best case scenario and assumes full implementation of all **announced** targets including net zero targets, LTSs and NDCs\*
- \* If 2030 NDC targets are weaker than projected emissions levels under policies & action, we use levels from policy & action

# CAT warming projections Global temperature increase by 2100

November 2021 Update



# OBJECTIVES



1. Develop an infrastructure for **modelling decarbonization** for governments to design local pathways.  
(along with dedicated support and capacity building programs)

- Compile existing decarbonization models ([EN-ROADS](#)) and develop additional ones (with [MIT Climate Interactive](#))
- Develop ICT tools to visualize and easily manage climate change data (with [ACM - Association for Computing Machinery](#))
- Identify necessary technological benchmarks to ensure we meet the Paris Agreement and design investment pathways to achieve them (with [SDSN Council of Engineers](#))
- Develop tools to assist governments in the use of all of the above (with [EAERE](#) and [AE4RIA](#))

2. Collaborate with the Food, Environment, Land and Development Action Tracker, Climate Action Tracker, SDSN SWG on EGD, and others to :

- Increase knowledge on available climate change policy instruments being used and evaluate their efficacy
- Assist and contribute to ongoing policy mapping efforts
- Evaluate synergic potential and measure co-benefits



3. Define innovative strategies for finance for mitigation and adaptation pathways

25 years of experience has taught us that achieving the systemic change we need requires a different order of innovation.

Incremental

System innovation

Transformational

Project finance model

Portfolio finance model

Single projects and incremental change

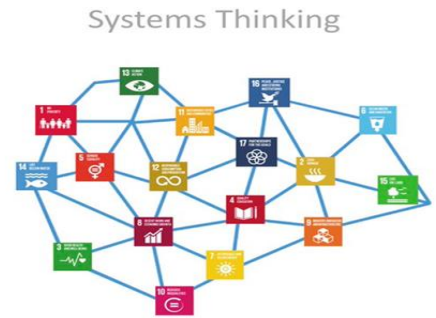
Portfolio of connected innovation projects that learn from each other

Siloed and fragmented activities, often focused on technological improvements

Wide appreciation of change levers



The transition to Decarbonization and Climate Resilience should be conceived on a systems approach, simultaneously addressing multiple objectives and promoting the right mixture of policy instruments and technological solutions, that can be used across the various sectors of the economy and reinforced by society.

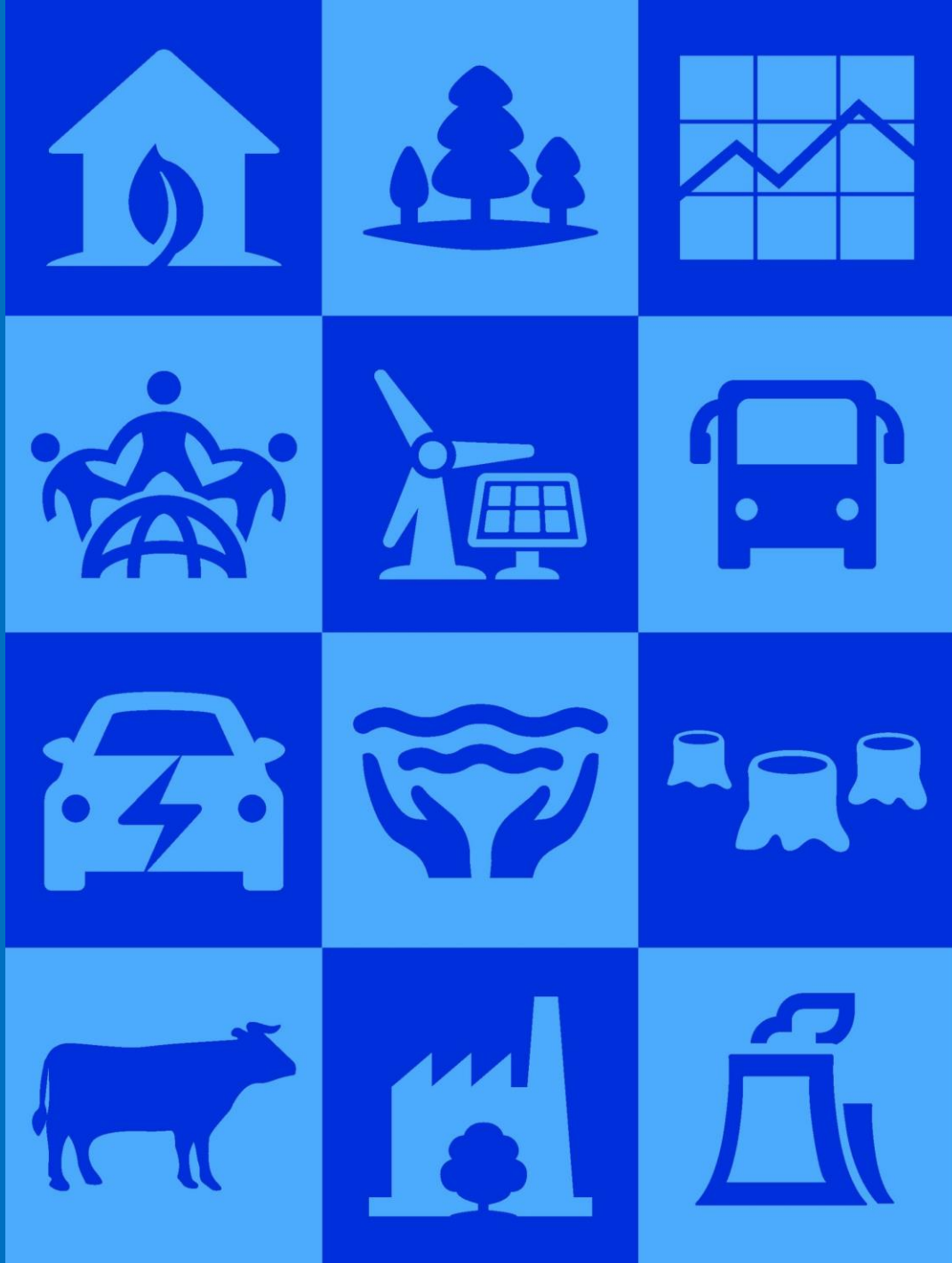


Climate Science based, Systemic and Holistic Pathways

- Technological
- Financial
- Policy

*for sustainable interaction between society, economy and nature*





# EN-ROADS

## CLIMATE SOLUTIONS SIMULATOR

[climateinteractive.org](http://climateinteractive.org)  
[en-roads.org](http://en-roads.org)

CLIMATE  
INTERACTIVE

**MIT**  
MANAGEMENT  
Sustainability Initiative

- EN-ROADS *System Dynamics Modelling Approach*

Explore pathways to address global energy and climate challenges through large-scale *policy, technological, and societal* shifts

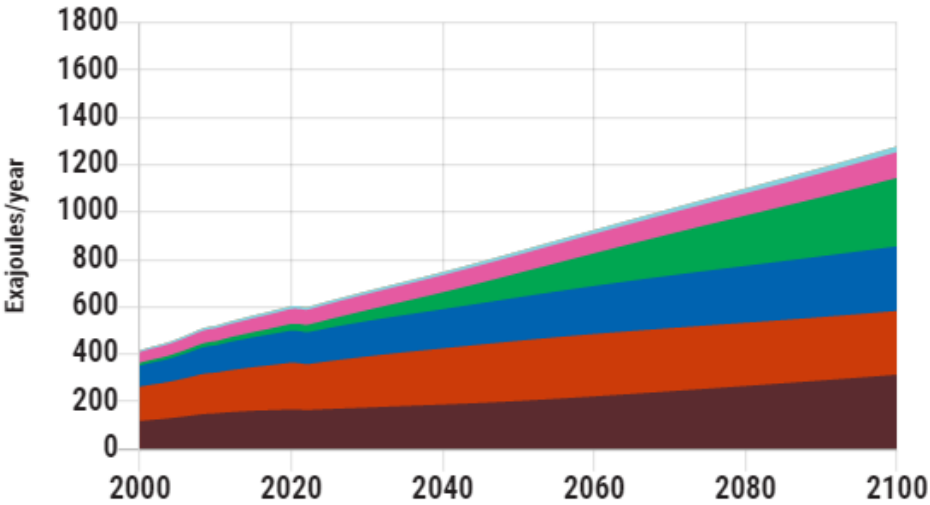
- Create Scenarios

Changes in taxes, subsidies, economic growth, energy efficiency, technological innovation, carbon-pricing, fuel mix, and other factors will change *global carbon emissions* and *temperature*

- **Test** Climate Solutions and Generate Climate Scenarios for the future (projections to 2100)

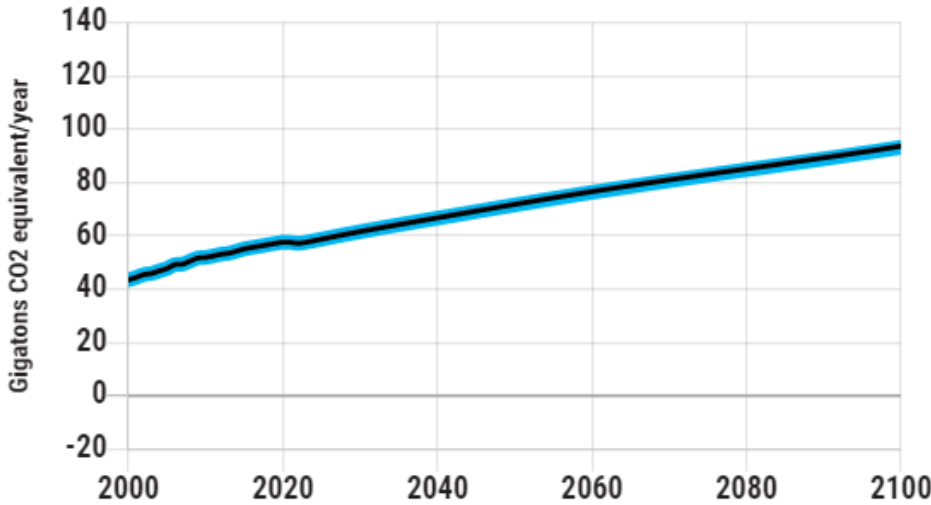


Global Sources of Primary Energy



COAL OIL GAS RENEWABLES BIOENERGY NUCLEAR NEW ZERO

Greenhouse Gas Net Emissions



BASELINE CURRENT SCENARIO

+3.6°C

+6.5°F

Temperature Increase by 2100

Energy Supply

Coal: status quo

Oil: status quo

Natural Gas: status quo

Bioenergy: status quo

Renewables: status quo

Nuclear: status quo

New Zero-Carbon: status quo

Carbon Price: status quo

Transport

Energy Efficiency: status quo

Electrification: status quo

Buildings and Industry

Energy Efficiency: status quo

Electrification: status quo

Growth

Population: status quo

Economic Growth: status quo

Land and Industry Emissions

Deforestation: status quo

Methane & Other Gases: moderately reduced

Carbon Removal

Afforestation: status quo

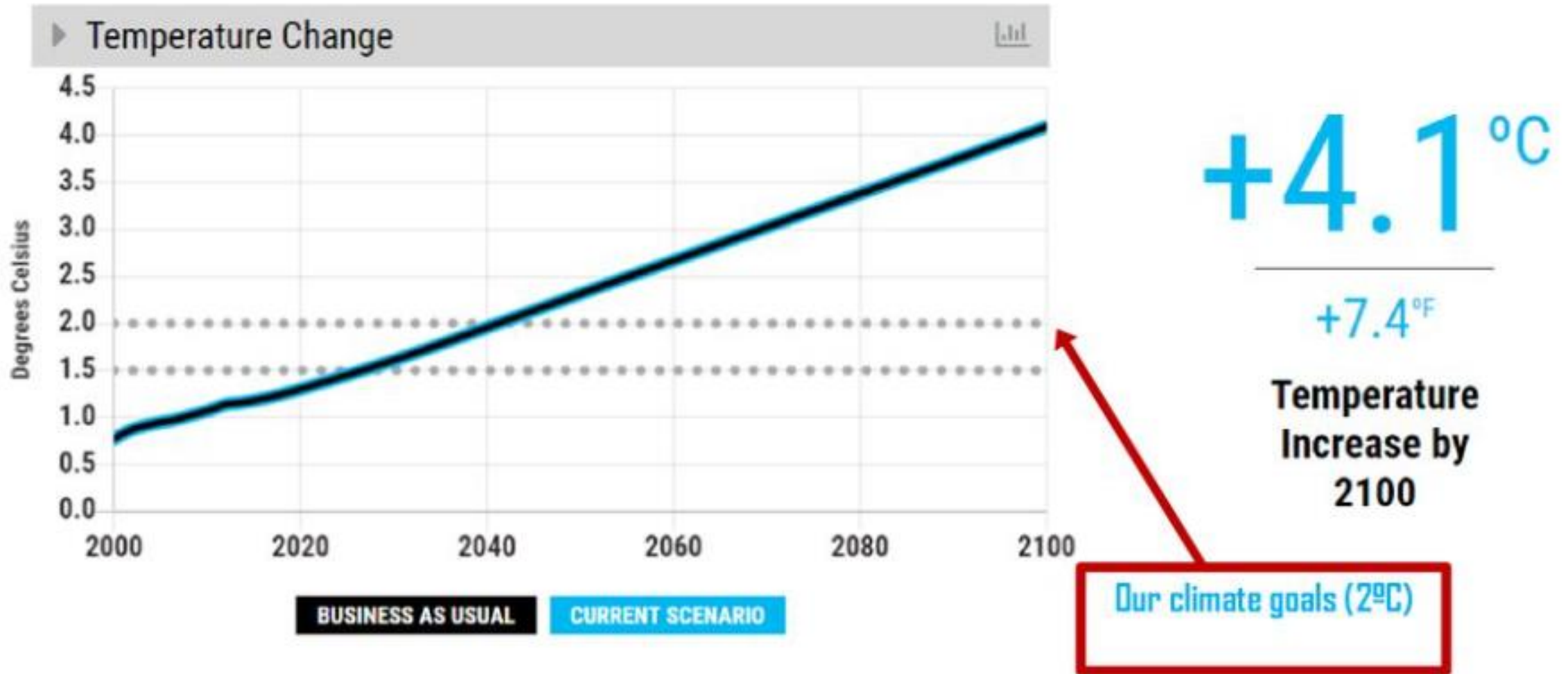
Technological: status quo



Register Your En-ROADS Event

# Test Portfolios of Solutions to Achieve Goals

## Business as usual



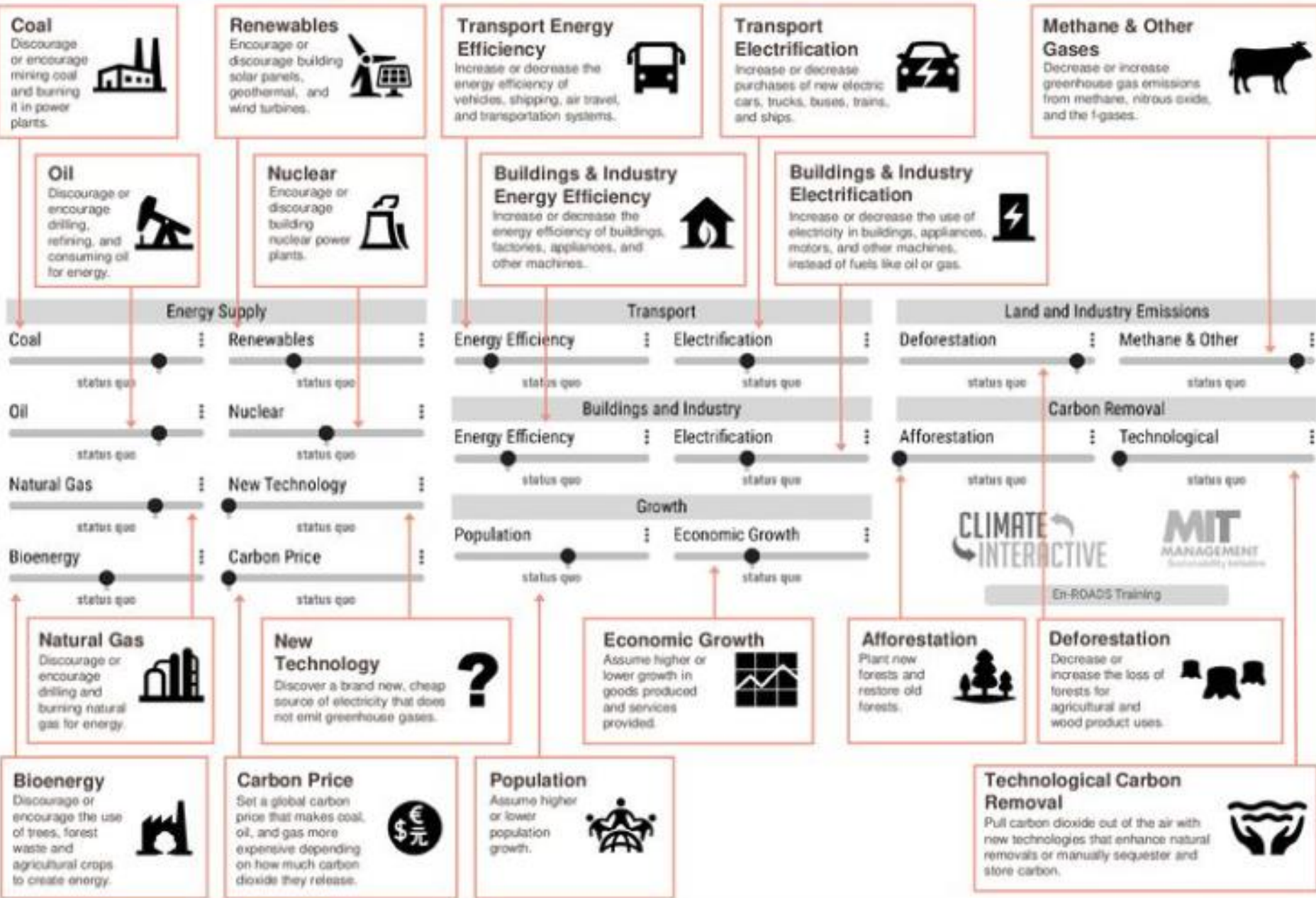


# En-ROADS Control Panel

climateinteractive.org



- The model emphasizes the system-wide interactions of policies.
- EN-ROADS reveals the dynamic interactions between different levers, such as how energy efficiency affects renewable energy, and which feedback loops are most significant.
- Behind the simulation is an extensive study of the latest research literature on factors such as delay times, progress ratios, price sensitivities, historical growth of energy sources, and energy efficiency potential.



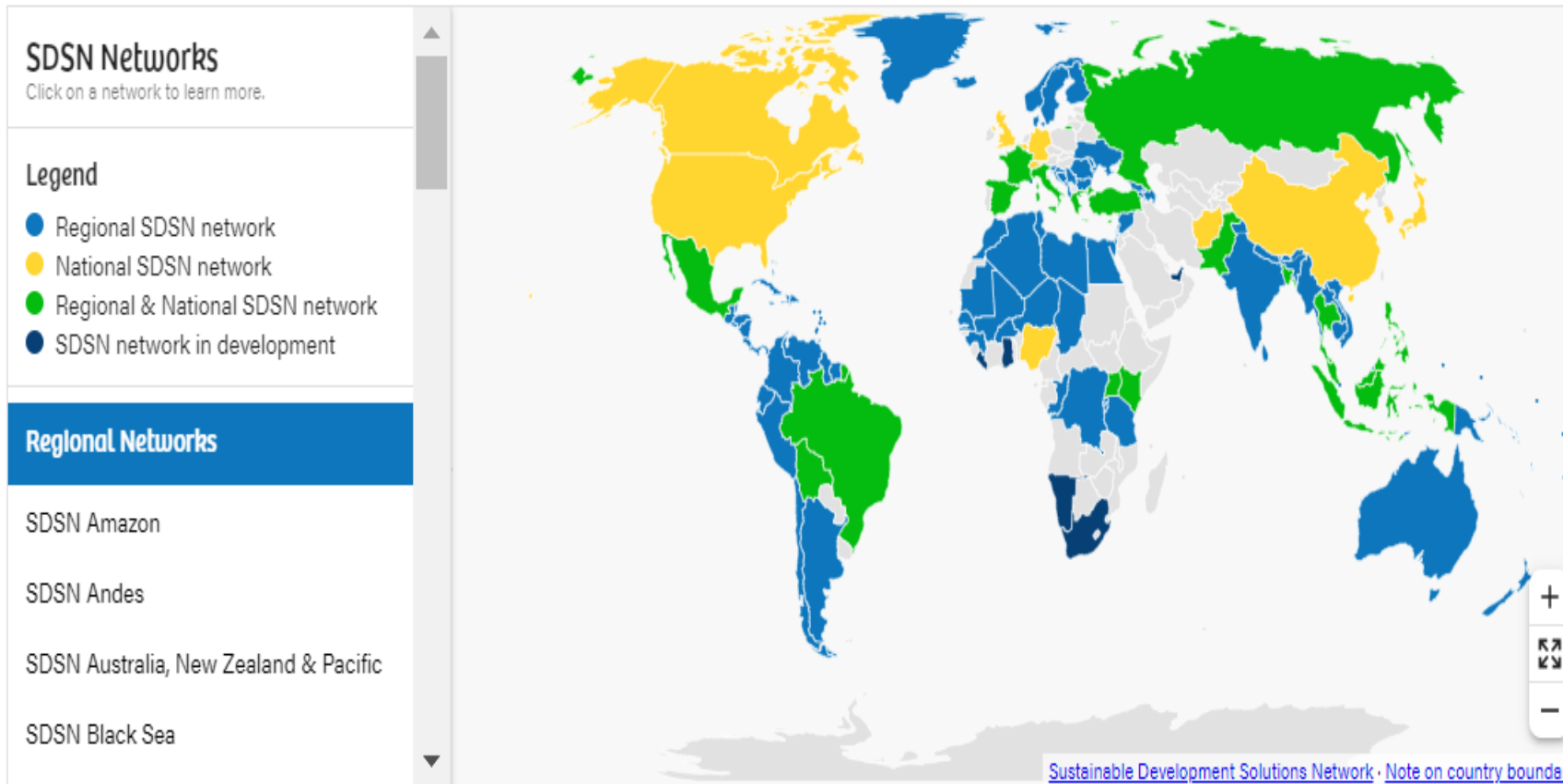
In collaboration with nation governments and respective SDSN National Hub, we will **co-design** *national and sub-national pathways for the transition to a climate neutral and a climate resilient world and showcase results in terms of the **6 transformations** for the transition to “The Future we Want”..*

- **Downscale** Global Models to *National / Corporate Level*
- **Expand** System Dynamics Modelling Modules and **Technological** Advances at a sectoral Level
- **Integrate** *Ecosystem Valuation* to the existing and updated modules



**SDSN NETWORKS:** We are committed to supporting the implementation of the SDGs at local, national, and global scales.

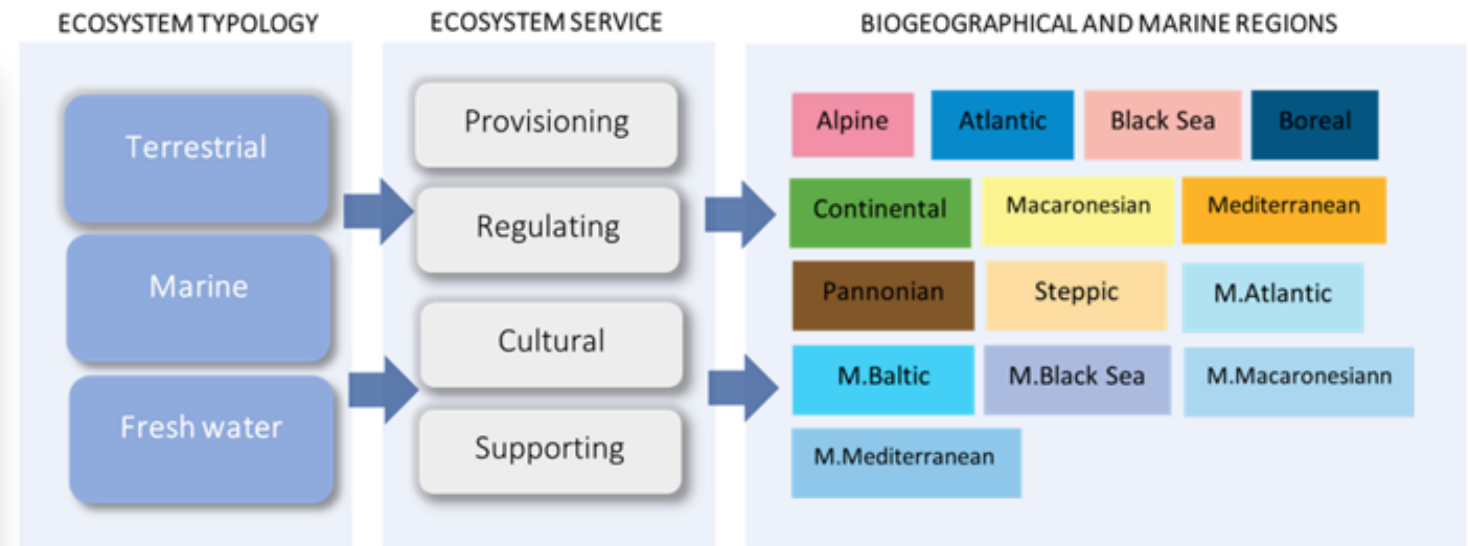
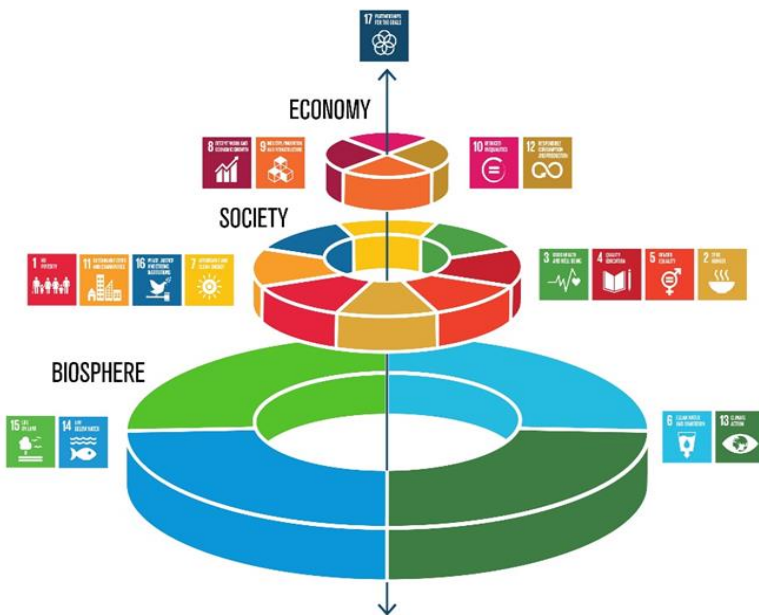
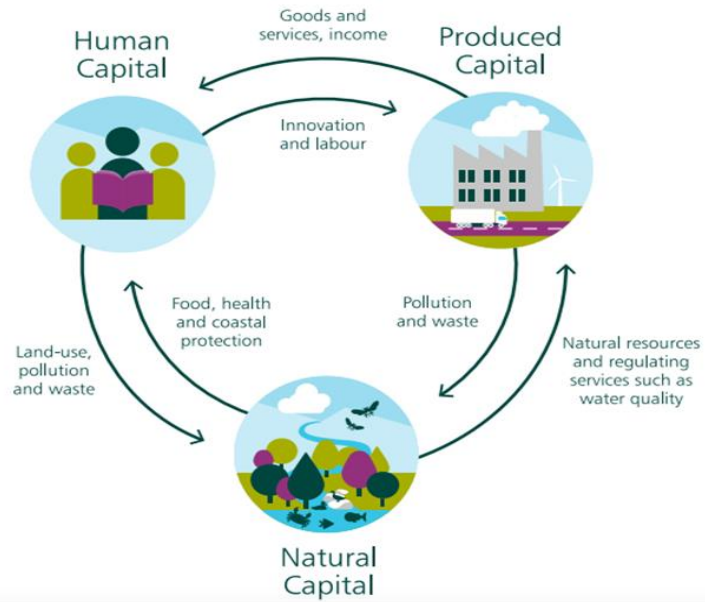
<https://www.unsdsn.org/>



We promote integrated approaches to implement the Sustainable Development Goals (SDGs) and the Paris Agreement on Climate Change, through education, research, policy analysis, and global cooperation.

# Integrating Ecosystem Valuation to Decision Making

- Economic Valuation of the European Ecosystem Services
- Estimate the **non-market** values of the European Ecosystems and Ecosystem Services
- Values can be directly used as inputs to **inform** the financial and economic modules in Systems Dynamics Models



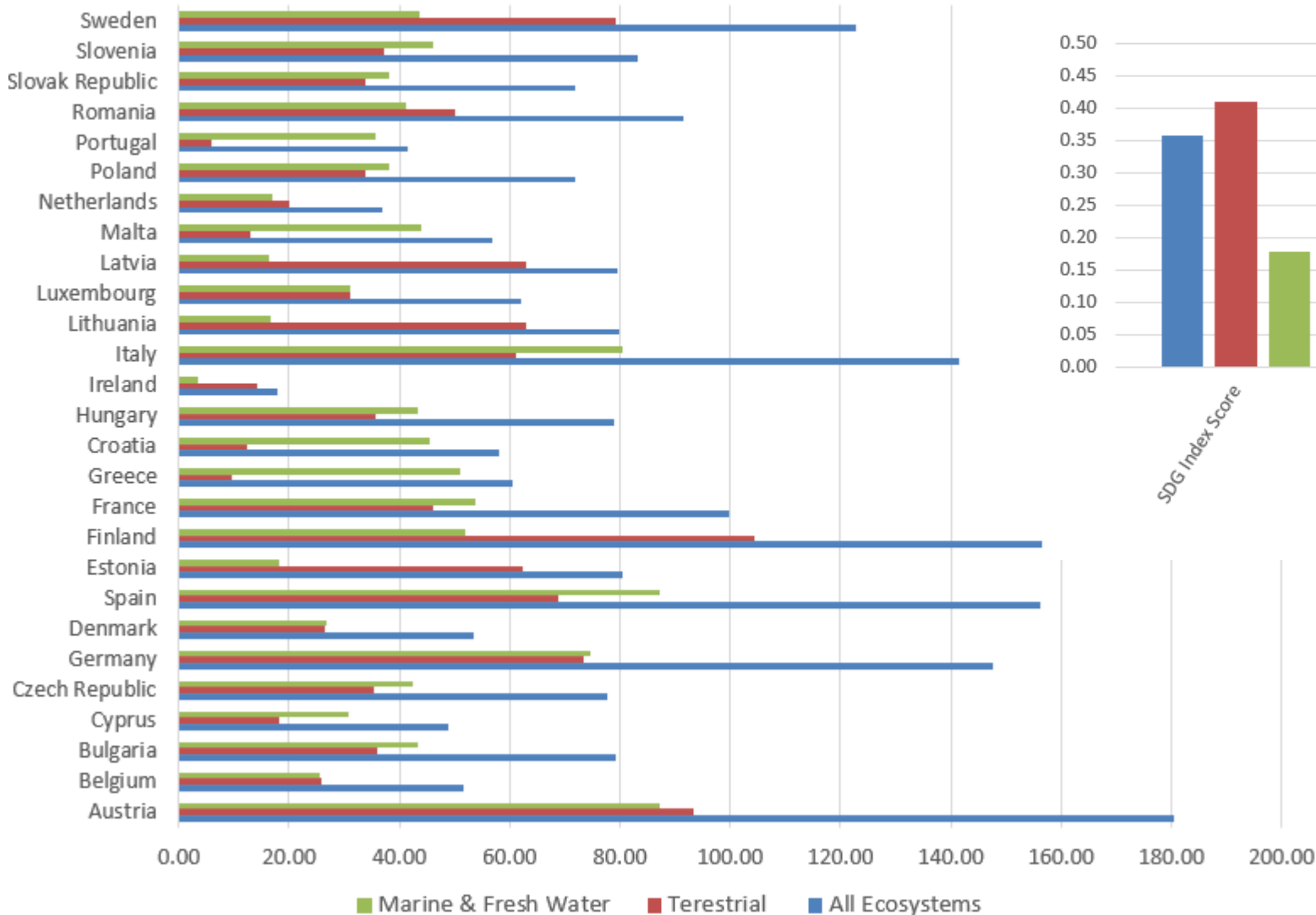
MAES Typology for ecosystem classification

Millennium Ecosystem Assessment, 2005

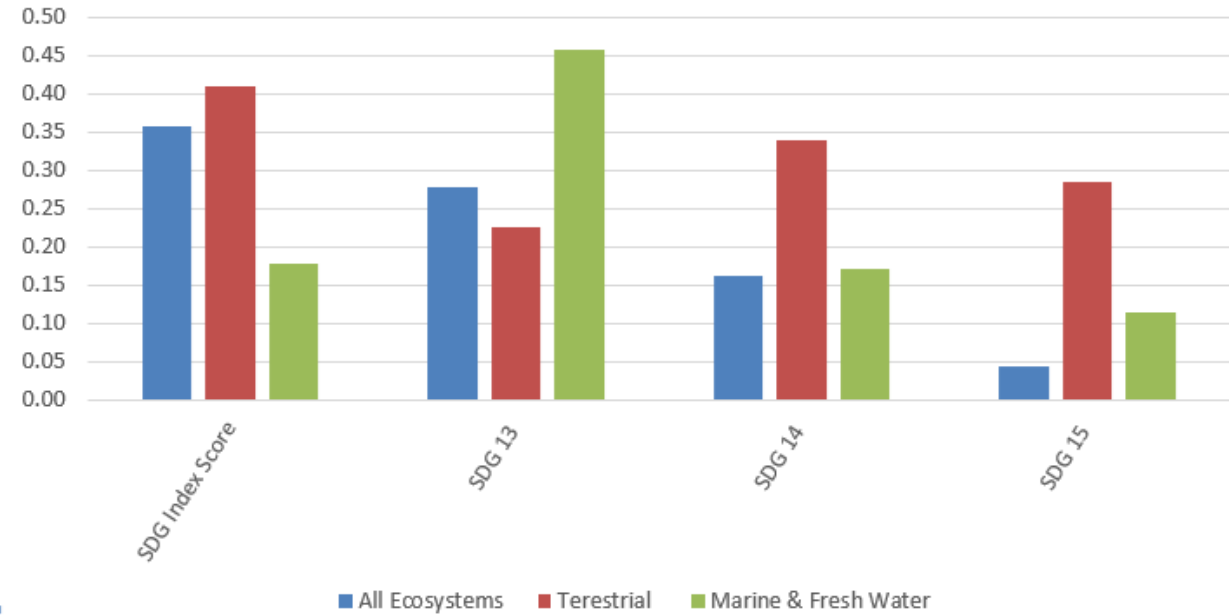
Habitats Directive (92/43/EEC), Art.17.

# National MWTP and Correlation to SDGs

Marginal WTP by Ecosystem and Country

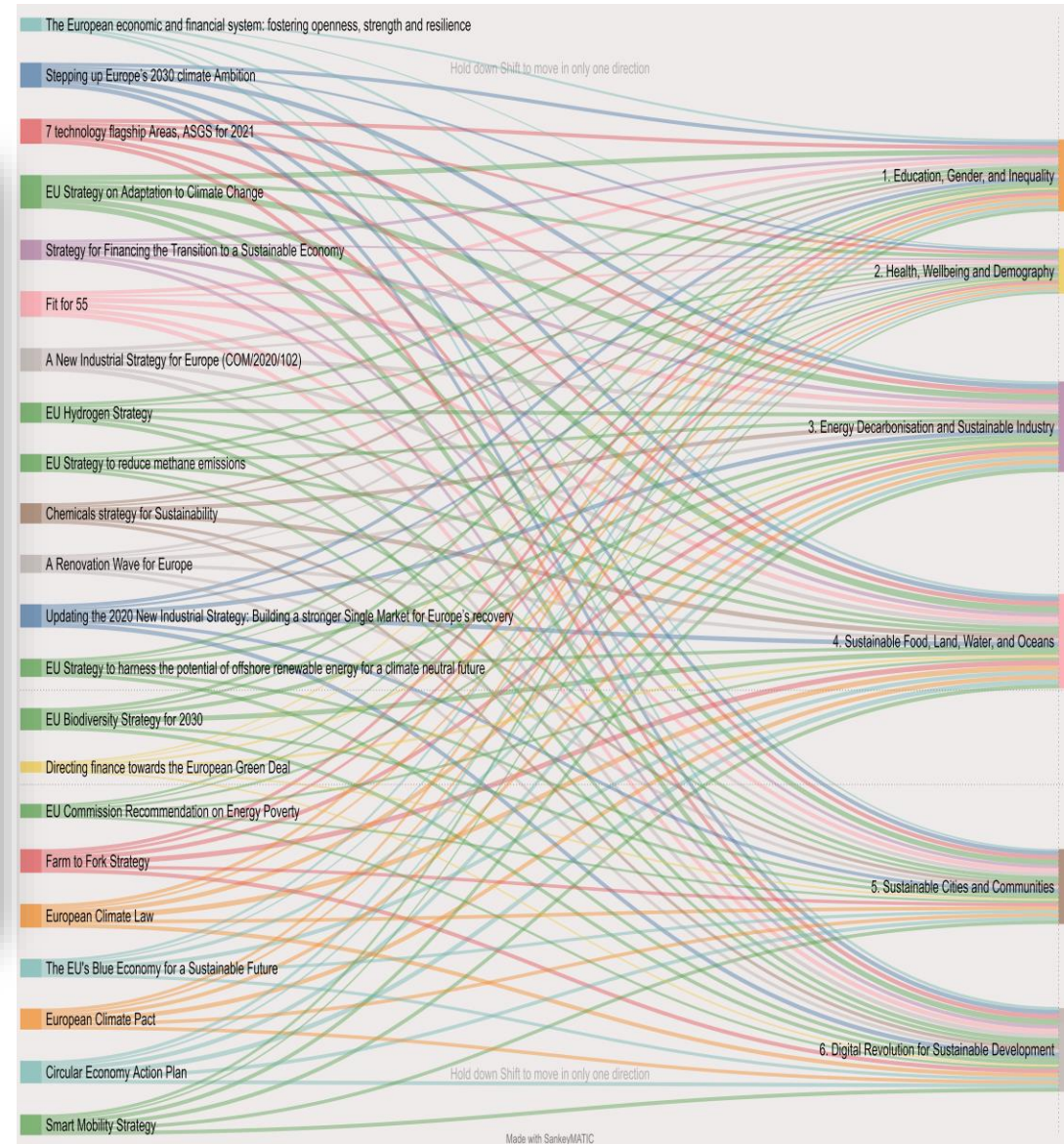


Correlation of Country SDG Index Score and Ecosystem MWTP by SDG



- Positive Correlation between MWTP and SDGs performance – Integrating the Value of Capital in Investment and Policy Decisions

# EGD mapped on 6 SDGs Transformation / European Level

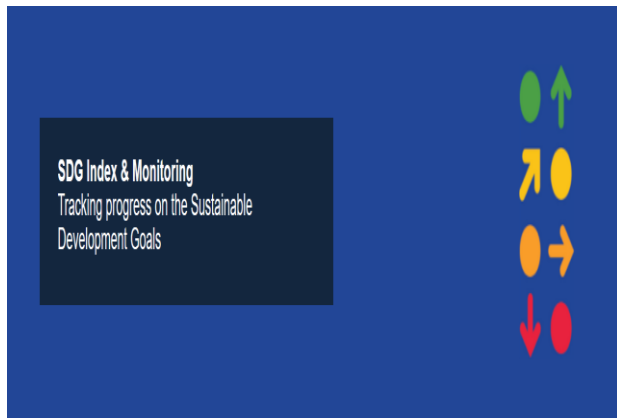


**Transformations most influenced by EGD**

**Transformation 4**  
Sustainable Food, Land, Water, and Oceans

**Transformation 3**  
Energy Decarbonization and Sustainable Industry

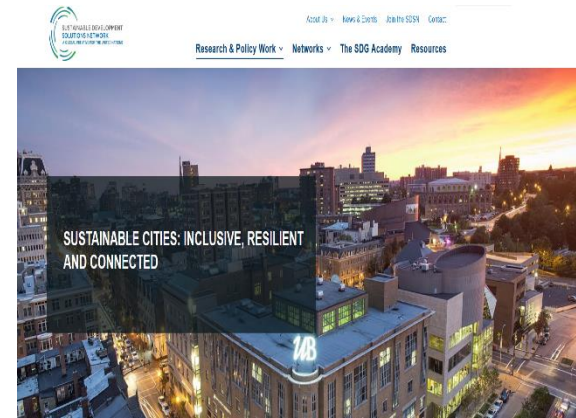
**SDGs are a more holistic framework than EGD, we need joint implementation SDGs-EGD**



**SDG Index & Monitoring**  
Tracking progress on the Sustainable Development Goals



**CLIMATE & ENERGY**



**SUSTAINABLE CITIES: INCLUSIVE, RESILIENT AND CONNECTED**



**Nature Map**

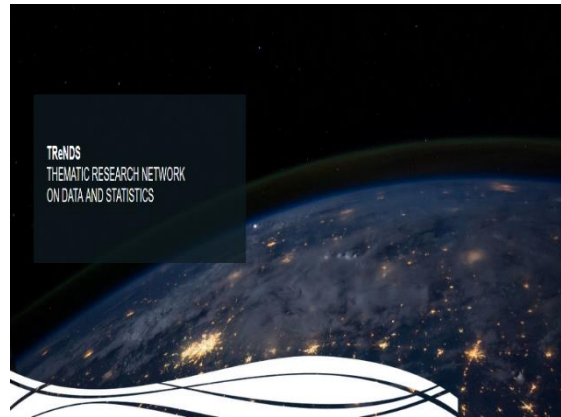
**FABLE**  
The Lancet's Biodiversity, Land and Energy (FABLE) initiative develops global and national priorities towards Sustainable Development Goals by 2050.

Nature Map Earth is developing an integrated global map of biodiversity, carbon storage, and other dimensions of nature by cross-linking and cross-verifying data from many sources.

The integrated map will allow decision-makers at global, national and sub-national levels to identify priority areas to operationalize their targets for the conservation and restoration of nature.



**GOOD GOVERNANCE OF EXTRACTIVE & LAND RESOURCES**



**TRENDS**  
THEMATIC RESEARCH NETWORK ON DATA AND STATISTICS




**SDG FINANCING INITIATIVE**



**The Lancet COVID-19 Commission**

Promoting solutions to improve global public health and support an equitable, transformative, green, and digital recovery.



**World Happiness Report**

**READ THE REPORTS**

The **World Happiness Report 2021** focuses on the effects of COVID-19 and how people all over the world have fared. Our aim was two-fold, first to focus on the effects of COVID-19 on the structure and quality of people's lives, and second to describe and evaluate how governments all over the world have dealt with the pandemic. In particular, we try to explain why some countries have done so much better than others.

**Read the Report**

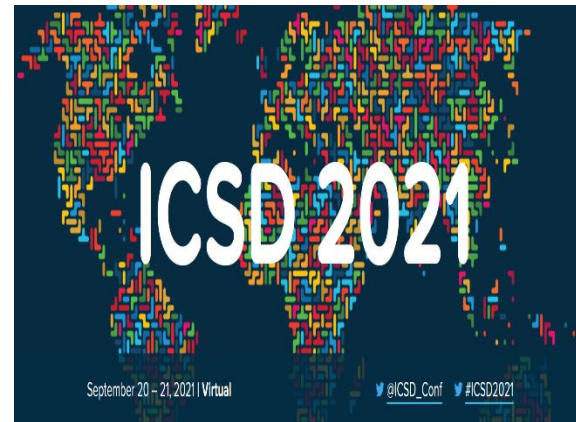
- CHAPTER 1: Overview: Life under COVID-19
- CHAPTER 2: Happiness, trust, and deaths under COVID-19
- CHAPTER 3: COVID-19 Prevalence and Well-being: Lessons from East Asia



**MISSION 4.7**

Launch Event | About Mission 4.7 | Who We Are | Our Partners | News | Watch the Launch

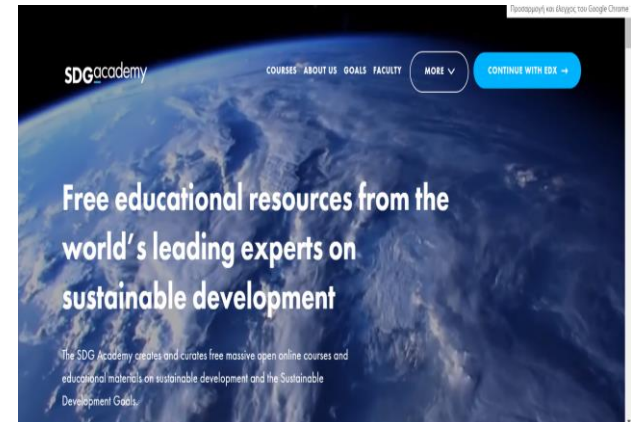
**Mission 4.7 brings together leaders from government, academia, civil society, and business to accelerate the implementation of Education for Sustainable Development around the world.**



**ICSD 2021**

September 20 - 21, 2021 | Virtual

@ICSD\_Conf #ICSD2021



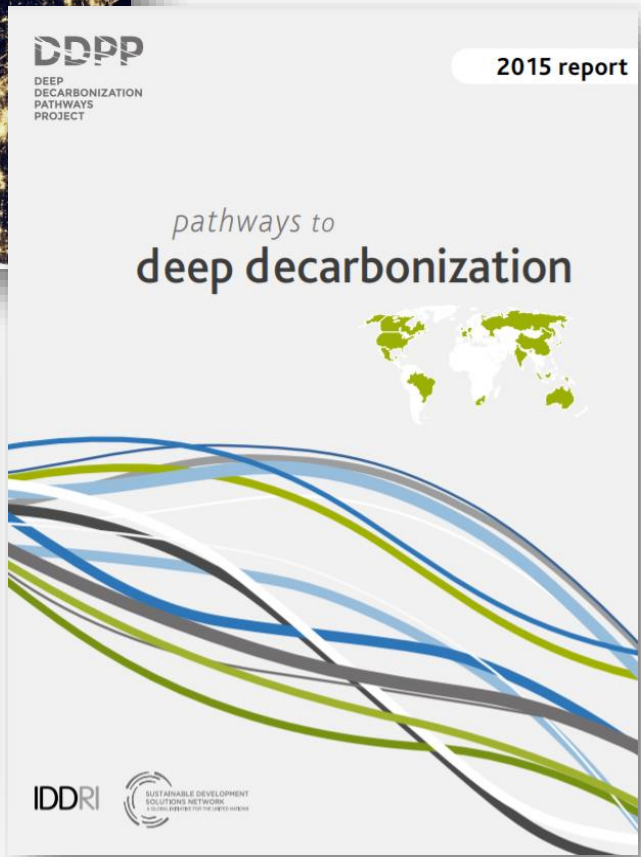
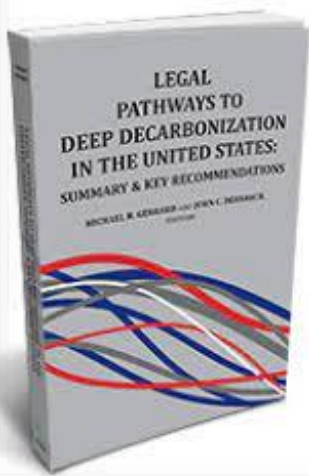
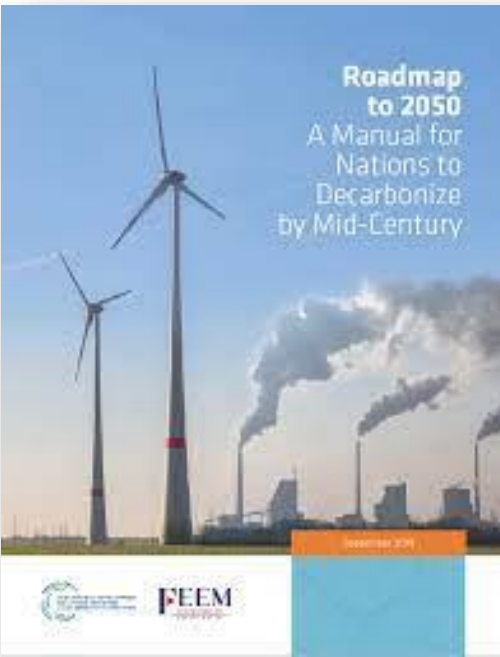
**SDG Academy**

COURSES | ABOUT US | GOALS | FACULTY | MORE | CONTINUE WITH EDUCATION

**Free educational resources from the world's leading experts on sustainable development**

The SDG Academy creates and curates free massive open online courses and educational materials on sustainable development and the Sustainable Development Goals.

# CLIMATE & ENERGY





# SDG Index and Dashboards: global, regional and subnational editions (2016-2021)

**Global editions**



**Regional editions**



**Subnational editions**



Download the reports and databases at: [www.sdgindex.org](http://www.sdgindex.org)



*Mission: “In Europe, over 400 members and 13 national and regional networks of SDSN are part of SDSN Europe that aims to align the European recovery with the Agenda 2030.*

*Leveraging on the research within the networks as well as on the SDSN’s work on the Six Transformations and other publications, SDSN Europe will play an active role in the shaping of a sustainable and resilient Europe.”*

See More

## OUR TEAM



**Adolf Kloke-Lesh**  
Co-chair of SDSN Europe  
Executive Director of SDSN Germany



**Phoebe Koundouri**  
Co-Chair of SDSN Europe  
Co-Chair of SDSN Greece



**Angelo Riccaboni**  
Co-Chair of SDSN Europe  
Chair of SDSN Mediterranean



**María Cortés Puch**  
Vice-President of SDSN  
Networks Programme



**Simone Cresti**  
Manager SDSN  
Mediterranean



**Elena Crete**  
Manager Senior Working  
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**Barbara di Paola**  
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**Andrija Erac**  
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**Maria Lentoudi**  
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**Dominic  
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SDSN Europe Manager



**Theodoros  
Zachariadis**  
SDSN Europe Manager



**Javier Arenas**  
SDSN Europe Intern



**Sam Van Hoof**  
Consultant, SDSN




**EUROPE  
SUSTAINABLE  
DEVELOPMENT  
REPORT 2021**

Transforming the European Union to achieve the Sustainable Development Goals  
Includes the SDG Index for the European Union, its member states, and partner countries.



#EUGreenDeal Senior Working Group

Transformations for the Joint Implementation of Agenda 2030  
 for Sustainable Development and the European Green Deal  
 A Green and Digital, Job-Based and Inclusive Recovery from  
 the COVID-19 Pandemic

<https://sdsn.eu/european-green-deal-senior-working-group/>



#EUGreenDeal Senior Working Group

Jeffrey Sachs President UN SDSN

Phoebe Koundouri President-elect EAERE  
co-Chair SDSN Europe

Paolo Carnevale Fondazione Eni Enrico Mattei

Carlo Papa Enel Foundation

Laura Cozzi International Energy Agency

Mariana Mazzucato University College London

Leonardo Becchetti University of Roma

