

Natural Capital in Sustainability Transition: A European Perspective

SDGs, European Green Deal, EU MFF, Recovery & Resilience Plan

Job Creation and Just Transition



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**President-Elect, European Association of Environmental and Resource
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- Director, Cluster on Sustainability Transition
- Co-Chair, UN Sustainable Development Solutions Network (SDSN) - Greece
- Director, EIT Climate KIC Hub - Greece, ATHENA RC
- Chair SAB, European Forest Institute
- Member of Greek Prime-Ministerial Committee on Recovery and Development Plan
- Member of the Greek Ministerial Climate Change Committee, Ministry of Environment and Energy



Control Epidemic Measures
Biomedical Research



CORONAVIRUS
COVID-19

Flattening the infection curve
Steepens the macroeconomic recession curve

- Health-related measures aim to spread the pandemic out over time and buy time for drastically raising the capacity of the health-care sector.
- Strict isolation measures lead to the shutdown of the complex web of economic supply chains and socio-economic networks.
- How can we avoid the pandemic turn into a major economic and financial crisis that will long outlast the health crisis?
 - Work force remains employed even if quarantined.
 - Governments channel financial support to public and private institutions that support vulnerable citizen groups.
 - SMEs be safeguarded against bankruptcy.
 - Policies to support the financial system as nonperforming loans mount.
 - Fiscal packages, comparable to the crisis related loss of GDP, will have to be financed by national debt.

Should we worry about the level of the debt? Yes, to the extent that is possible we want to avoid another debt crisis, but most importantly, we want to avoid an unsustainable recovery.



Sea Level Rise
More Intense Storms
Disasters, Operational Delays
Subsidence, Damage, Loss of Quality
Waste Impacts
Floodings


THE CLIMATE EMERGENCY
Urgency of limiting global warming to +1.5C, beyond which the risk of extreme weather events and poverty for hundreds of millions of people, will significantly increase. There is no country that is not experiencing the drastic effects of climate change.
The annual average economic losses from climate-related disasters are in the hundreds of billions of dollars.
The human impact of geo-physical disasters, which are 91 percent climate-related, and which between 1969 and 2017 killed 1.3 million people, and left 4.4 billion injured.

CARBON NEUTRALITY-2050.
UNEP Emissions Gap Report 2019 indicates that global emissions need to be cut by 7.6% per year. Calculated, this means a global reduction target of at least 68% by 2030.
17/09/2019 European Commission President proposed to increase the 2030 goal for emissions reduction from 40% of 1990 levels to at least 55%.



CLIMATE CHANGE



A person is walking away from the viewer on a path that divides the image. To the left of the path is a cracked, dry, brown landscape under a hazy, orange sky. To the right is a lush green field under a bright blue sky with white clouds. The person is silhouetted against the bright light of the horizon.

**What kind of Growth
do we need?**

Sustainable Growth:

Organizing principle for meeting human development goals, **while**

sustaining the ability of natural systems to provide the natural resources and ecosystem services , **upon which**

the economy and society depend.

Environmental Sustainability

Economic Sustainability

Social Sustainability

Sustainable development meets the needs of the present, without compromising the ability of future generations to do the same.

Sustainability Policy Framework

2015



193 Countries

17 SDGs

169 Targets

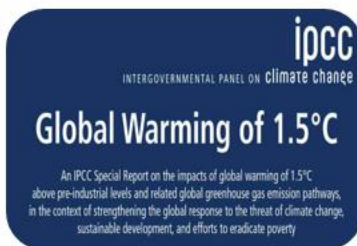
2015



197 Countries

Limiting global
temperature to
well below +2°C

2018



- Limiting global temp. to 1.5°C
- This implies zero net emissions globally by 2050

2019



6 Major
Transformations to
achieve SDGs

Dec 2019

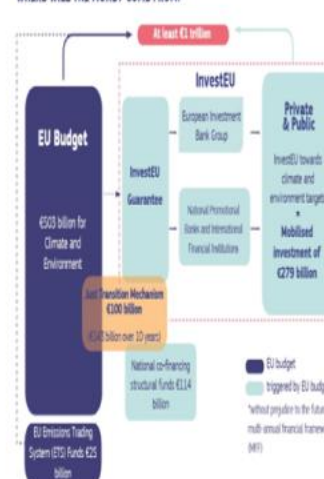


EGD Policies Overview

How will the European Green Deal Investment Plan be financed?

How will the €1 trillion be mobilised?

WHERE WILL THE MONEY COME FROM?



2020 ...



Flattening the infection curve
steepens the macroeconomic
recession curve

Infographic: EU budget 2021-2027 and recovery plan

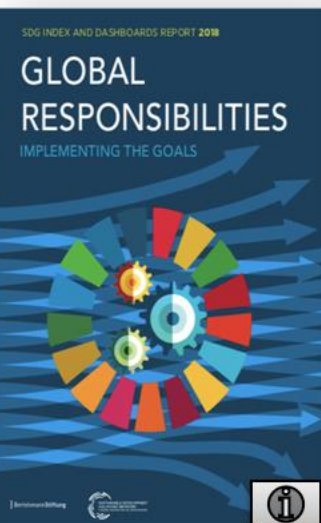
EU budget 2021-2027 and recovery plan



Enhanced EU MFF &
Recovery Plan
Next Generation EU

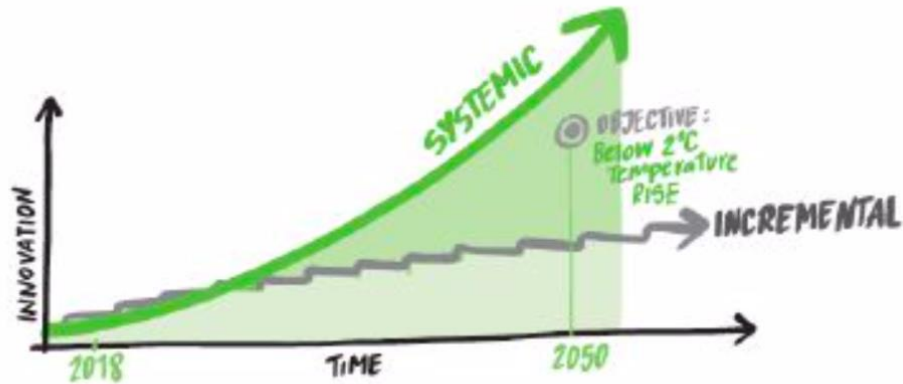


Senior WG for the
EU Green Deal



Why Systems Innovation?

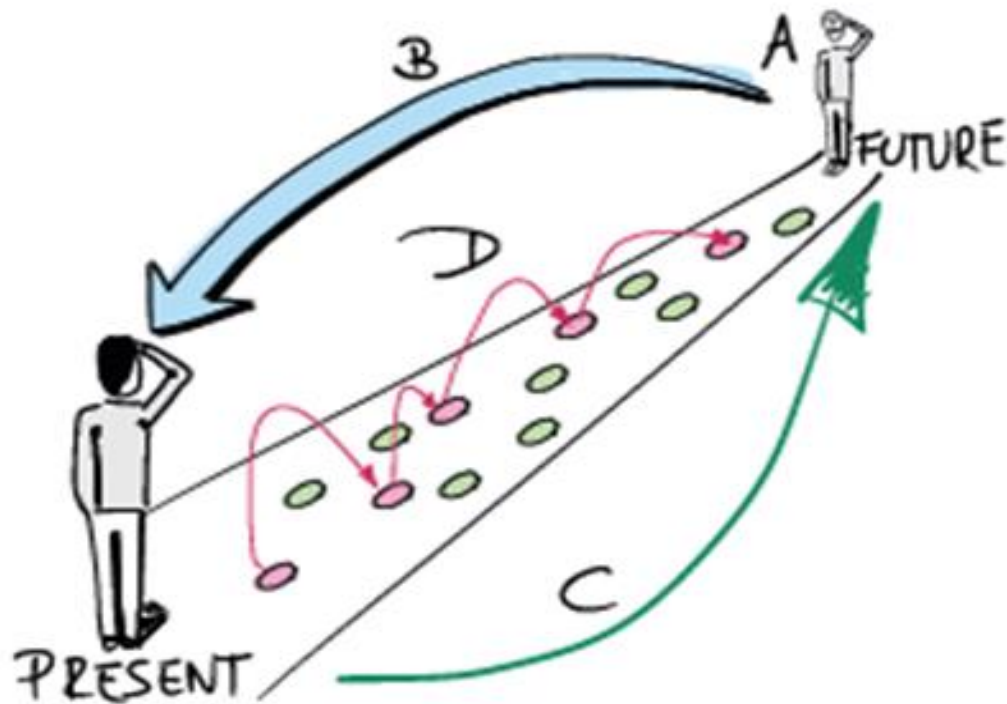
Integrated & Coordinated Interventions in economic, financial, political and social systems and along whole value chains. In systems, by means of the relations, elements are arranged in such a fashion that gives rise to a **new structure** functioning.



Working through gradual, incremental changes is not enough!

What is needed now is a **fundamental transformation** of economic, social and financial systems that will trigger exponential change in decarbonisation rates and strengthen climate resilience – IPCC report: “**rapid, far-reaching and unprecedented changes in all aspects of society**”.

Bottom Up Mobilization: THE CLIMAE PACT Systems Innovation Approach Co-Design with Stakeholders



NAT/785
European Climate Pact

OPINION

Section for Agriculture, Rural Development and the Environment

European Climate Pact
(Exploratory opinion)

Rapporteur: **Dimitris Dimitriadis (EL-I)**
Co-rapporteur: **Peter Schmidt (DE-II)**

Expert: **Prof. Phoebe Koundouri**



Top-Down Mobilization Green New Deals around the World

Canada The Pact for a Green New Deal

Proposed on
May 2019



A GREEN NEW DEAL

A PROGRESSIVE VISION for ENVIRONMENTAL
SUSTAINABILITY and ECONOMIC STABILITY

USA Green New Deal

Proposed on
March 2019

South Korea Green New Deal

Agreed on 14
July, 2020
\$94.5 billion



GREEN NEW DEAL



Israel Green recovery plan

June 2020



China Carbon neutral before 2060

Announced
on 22
September,
2020

Top-Down Mobilization

THE CLIMATE LAW – PROPOSAL

Critic



- Does not include an ambitious goal with regards to Green House Gas (GHG) emissions by 2030
- Does not address the other legislative interventions and revisions that will be required to achieve climate neutrality by 2050
- Does not allow the European Commission (EC) to impose sanctions on Member States (MS)
- Does not allow the EC to take additional measures and change policies that will correct possible deviations from the path to achieving the emission goals.
- There is no clear reference to an assessment mechanism between today and 2050
- No reference to financial mechanisms that will be required to achieve the goal of climate neutrality.
- No reference to comprehensive framework that will recognize the relationship between water, energy, food security and biodiversity (WEF Nexus)

Aim: Allocation of scarce natural, human, accounting capital across people, over time & space, while Environmental-Economic-Social Sustainability is achieved.

Integrated and Interdisciplinary Methodology

MODELS ON INTERACTION

Dynamic, Spatial, Uncertainty

- Nature
- Society
- Economy

FRAMEWORK CHARACTERIZATION & Co-Design of Future Vision with Stakeholders

- Natural Capital
- Socio-Economic-Institutional Framework
- Stakeholders: Research&Innovation, Business, Financial System, NGOs, Civil Society

EMPIRICAL APPLICATION of MODELS

Estimation of Economic Value

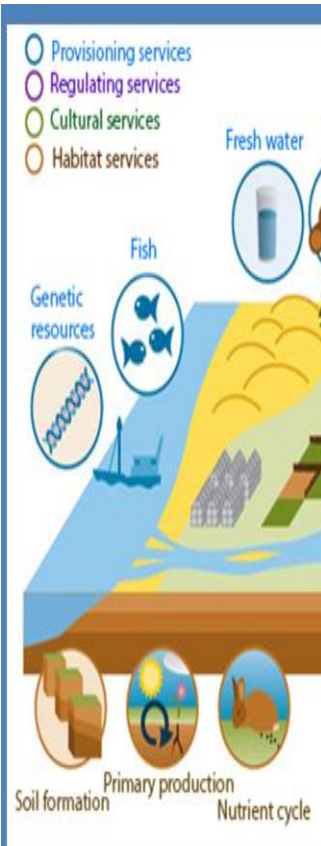
OPTIMAL ALLOCATION based on Value

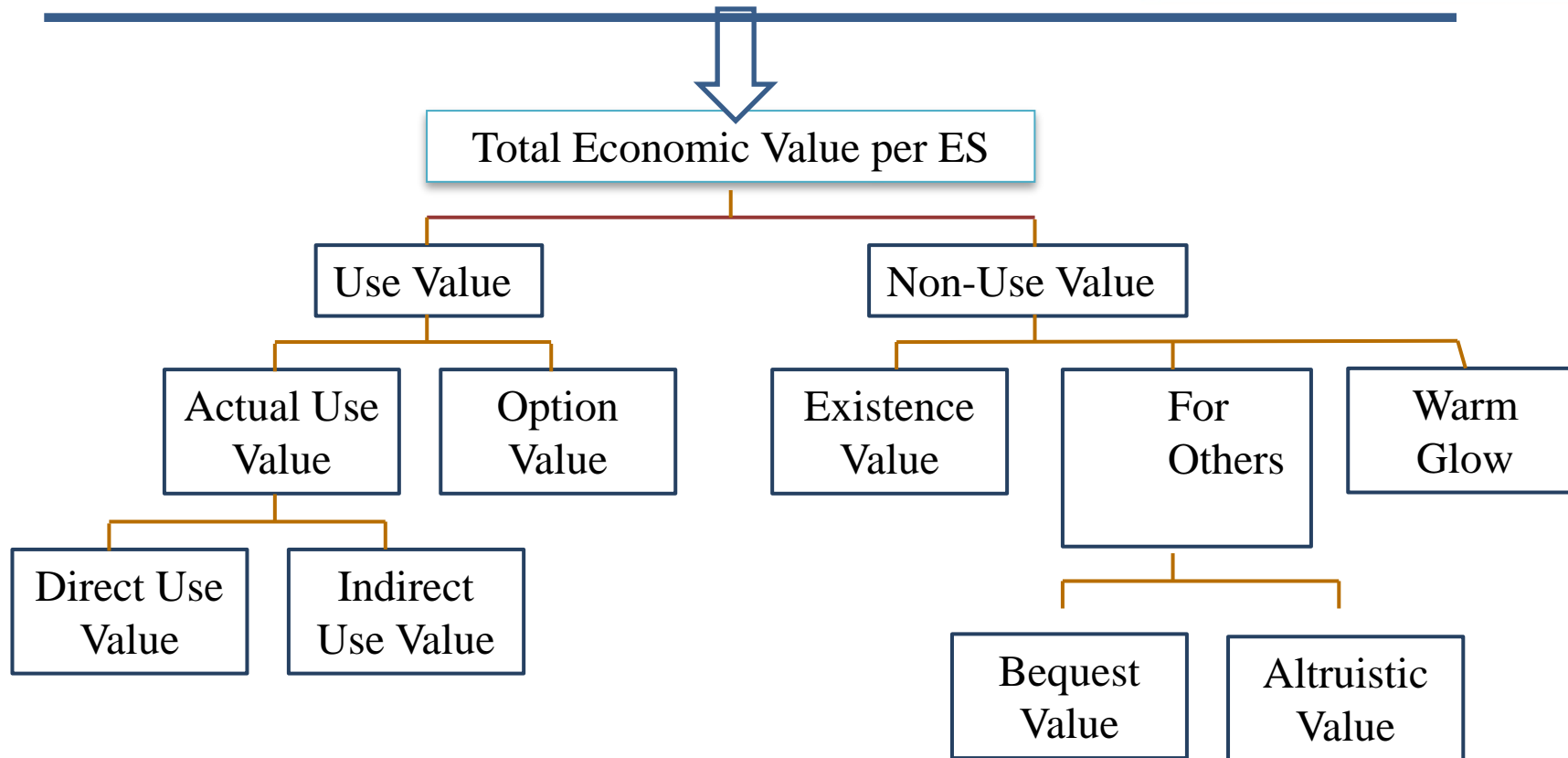
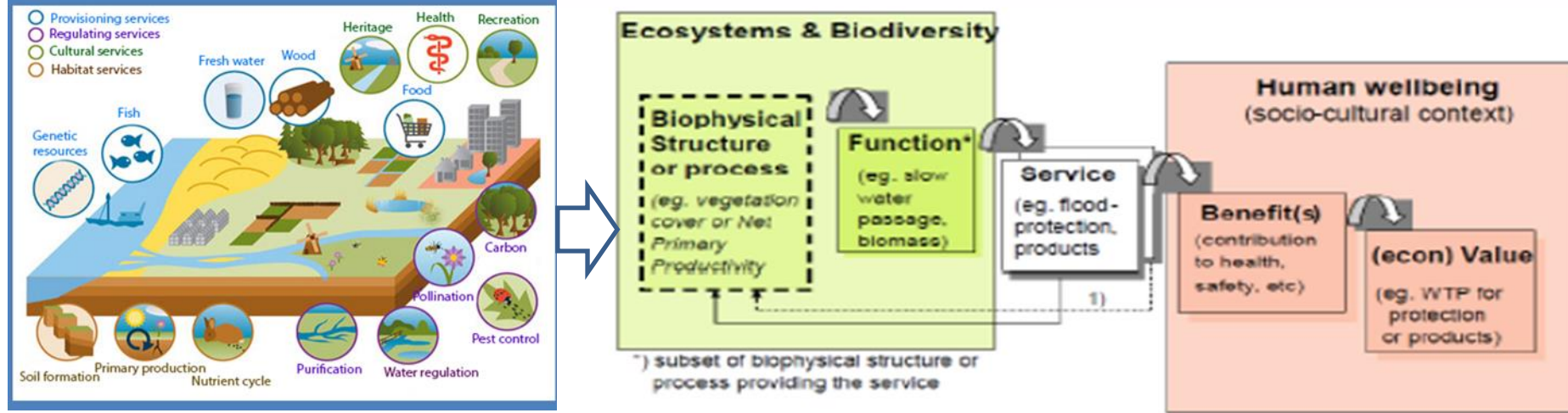
How?

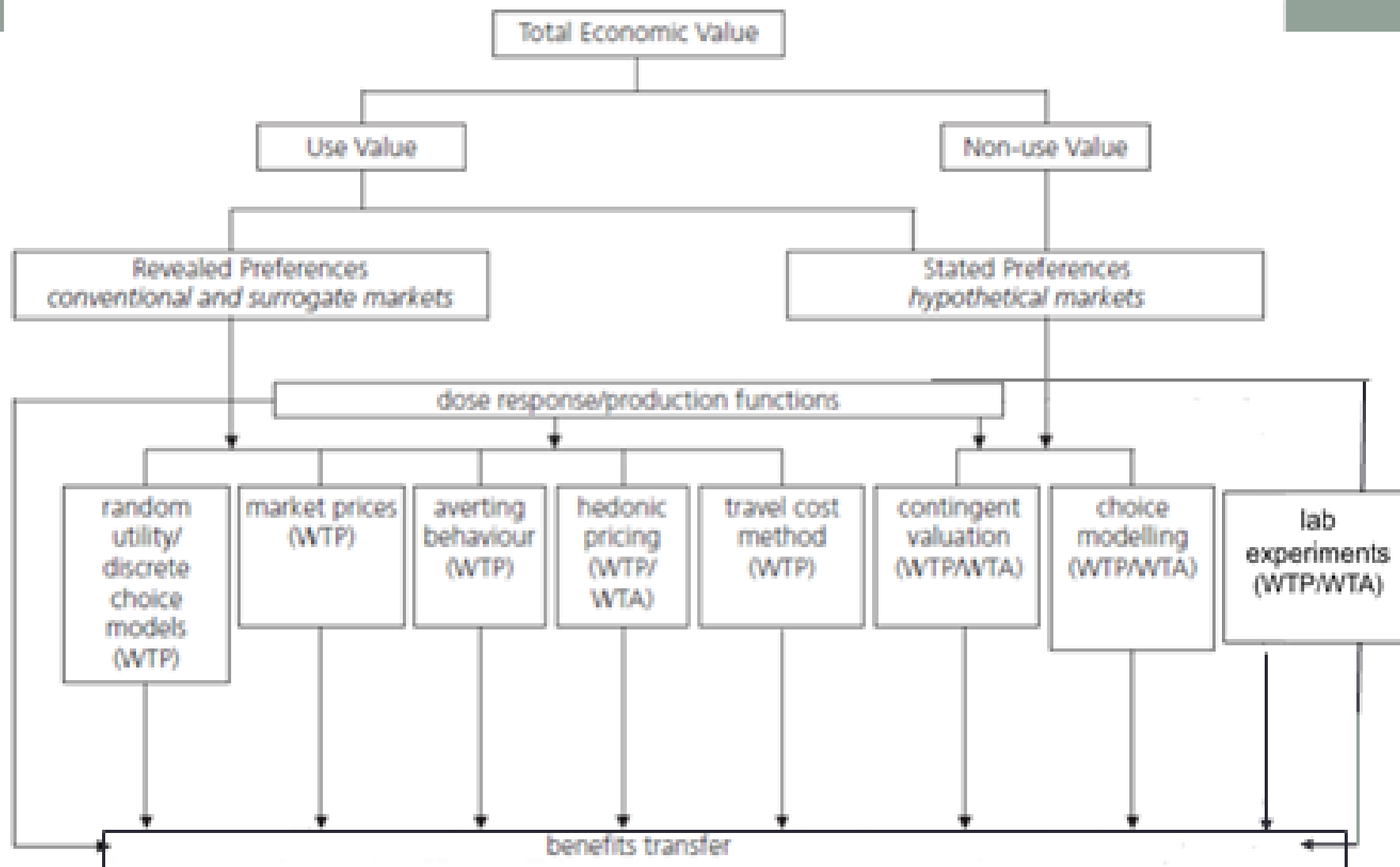
- Socio-Economic, Legal Instruments
- Technological Innovations
- Social and Institutional Innovations
- Nature Based Solutions
- Infrastructural Solutions

STRATEGIC MANAGEMENT PLANS Co-Developed with Stakeholders:

Technological & Policy Pathways Supported by Funding Portfolios







- TEV: systematic tool for considering full range of impacts on human welfare.
- TEV: reflects the preferences of individuals, which can be statistically estimated
- TEV: essential for resource allocation and policy making.

The European Green Deal

#EUGD

UN SDSN Senior Working Group
for the Energy Transition

Six Transformations to Achieve the SDGs
and Support for the European Green Deal



PROJECT TEAM

Chairs

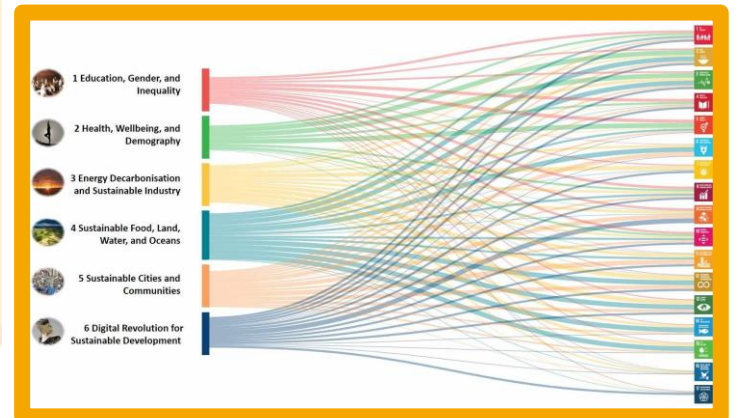
Prof. Phoebe Koundouri
Prof. Jeffrey Sachs

Senior Members

Athens University Economics & Business
Enel Foundation
Fondazione Eni Enrico Mattei,
International Energy Agency
University College London
University of Rome

Members

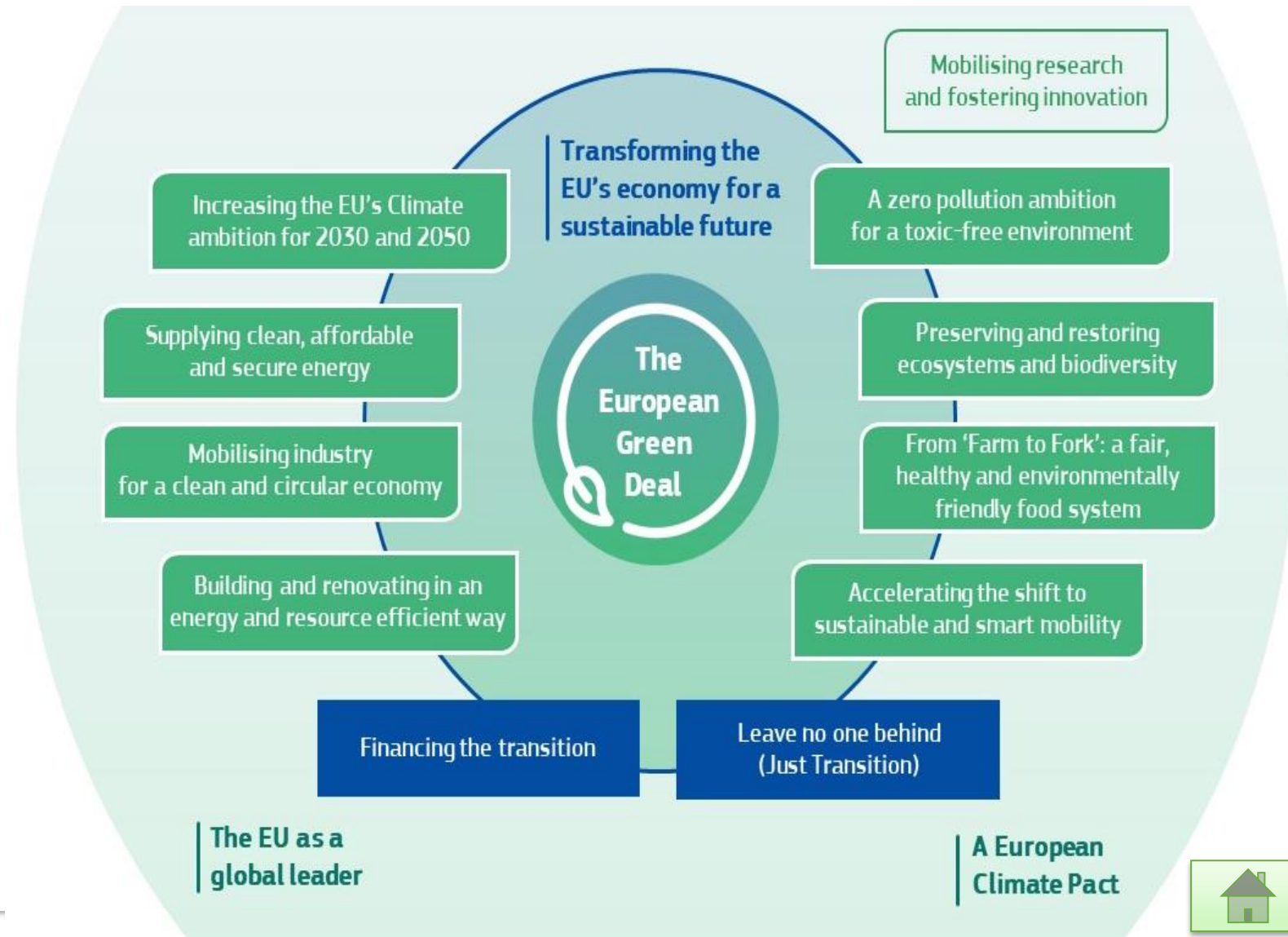
All European SDSN National Hubs



The European Green Deal (EGD) – Overview

The policy areas that are covered from the EGD are:

- ✓ Biodiversity
- ✓ From Farm to Fork
- ✓ Sustainable agriculture
- ✓ Clean energy
- ✓ Sustainable industry
- ✓ Building and renovating
- ✓ Sustainable mobility
- ✓ Eliminating pollution
- ✓ Climate action



Six Transformations to Achieve the SDGs and Support for the European Green Deal: Senior Working Group for the Energy Transition



- Joint implementation of the **European Green Deal** and **SDGs**: country-specific and EU upscale
- Country-specific 3-D mapping:
 - (a) SDGs achievement (based on SDSN Indexes)
 - (b) European Green Deal Policies + Next Generation EU Recovery Fund + enhanced MFF
 - (c) European semester process recommendations
- Based on 3-D mapping, **Technological Pathways**, **National Energy and Climate Plans**, we construct recommendations for investment pathways 2020-2030 and until 2050, categorized in the **Six Transformations** (health, education, decarbonization, land-sea management, sustainable communities, digitalization).
- Investment Pathways are supported by portfolios of funding sources (public, private, PPP).
- Implication for Job Creation and Just Transition: country-specific and EU upscale

Who is it for?

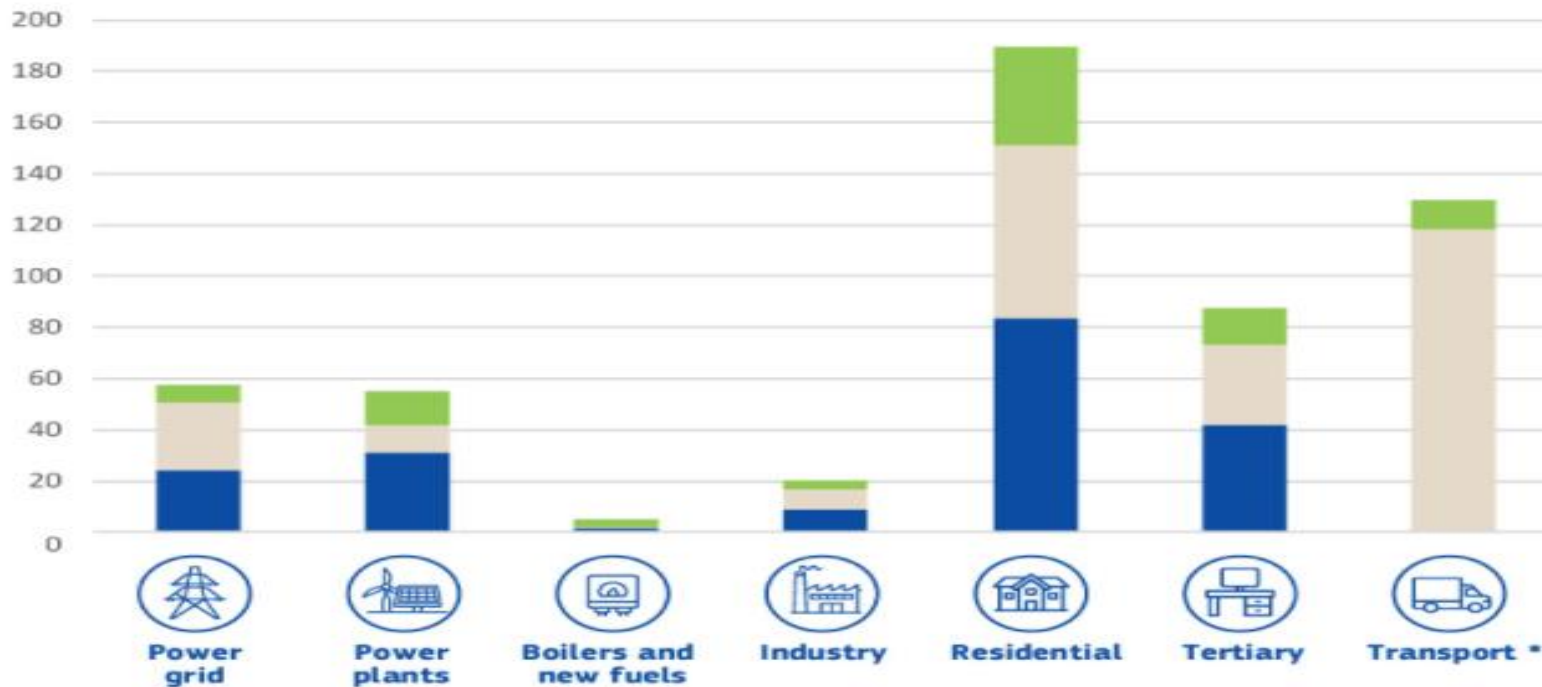


- EU MS's Politicians/Decision Makers to facilitate **identification investments and absorption of funds** at National Level and to create **cross-country alliances** for a Sustainable Recovery
- Public Sector and Business to facilitate **Public-Private Partnerships** and mobilize private resources for the Implementation of the EGD
- Create a **Climate Pact Manifesto** to engage, together with politicians and policy makers, business, the financial sector and civil society (Systems Innovation Approach)

DECARBONIZATION: National Energy and Climate Plans:

For increased GHG emissions reduction target of 55% an increase in investment of €350 billion per year is needed compared to the previous decade

Average annual investments 2011-2020 and additional investments 2021-30
under existing policies and to achieve -55% greenhouse gas emission reductions
(in billion EUR 2015)



- Additional to achieve -55% greenhouse gas reductions, 2021-2030
- Additional under current 2030 policies in 2021-2030 compared to 2011-2020
- Historic annual investments in the energy system 2011-2020

* transport only shows additional investment

Phasing out coal in the final NECPs

21 MS:

Coal-Free: Estonia, Latvia, Lithuania, Belgium, Malta, Luxembourg, Cyprus

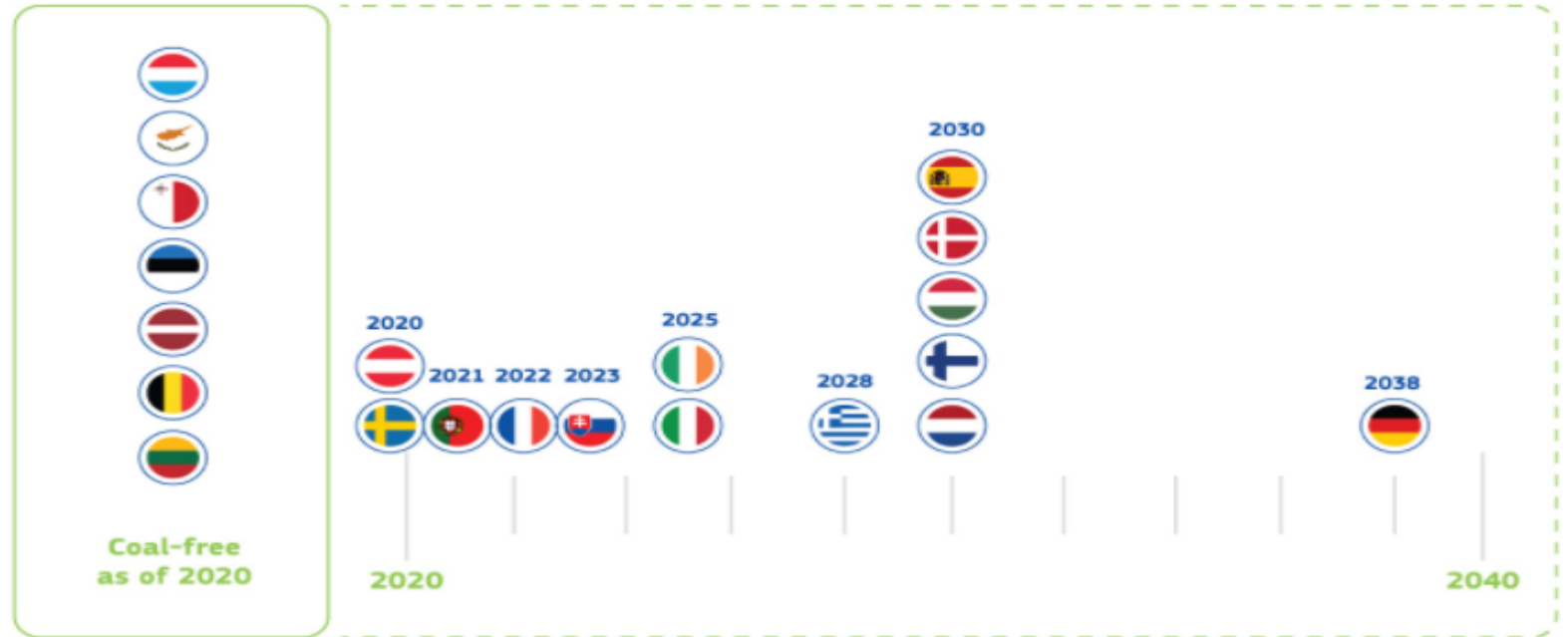
Or

Committed to phasing-out coal

Considering coal phase out:
Slovenia and Czechia

Not planned phase out:
Poland, Romania, Bulgaria, Croatia

Update on transition-related issues in the EU
Coal phase out commitments as per National Energy and Climate Plans (NECPs)



Phase out under consideration



No phase out planned



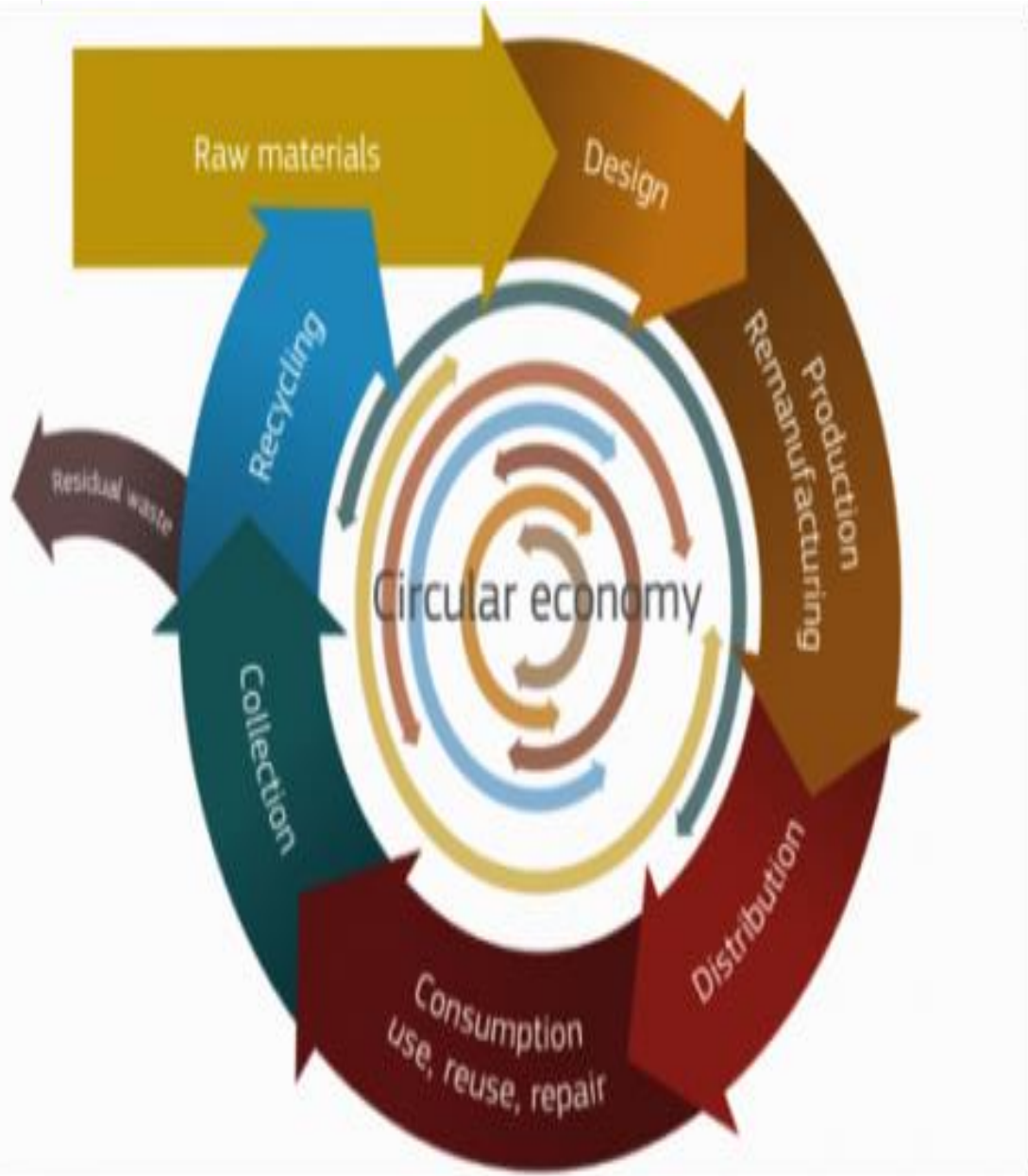
Technological Pathways

National plans should cover the period to at least 2050 and should aim to equitably reach net zero emissions by 2050 and net negative emissions in the second half of the century.

EC Annual Sustainable Growth Strategy 2021, 17 September 2020

Reforms and Investments to create European flagships:

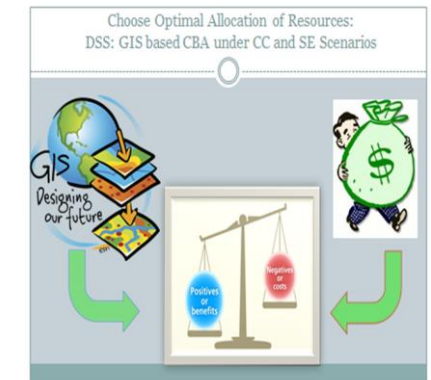
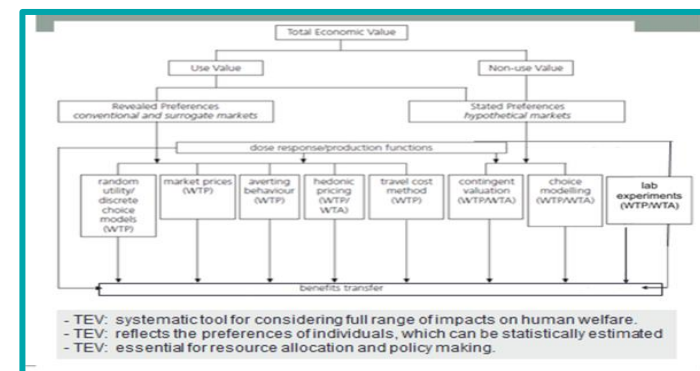
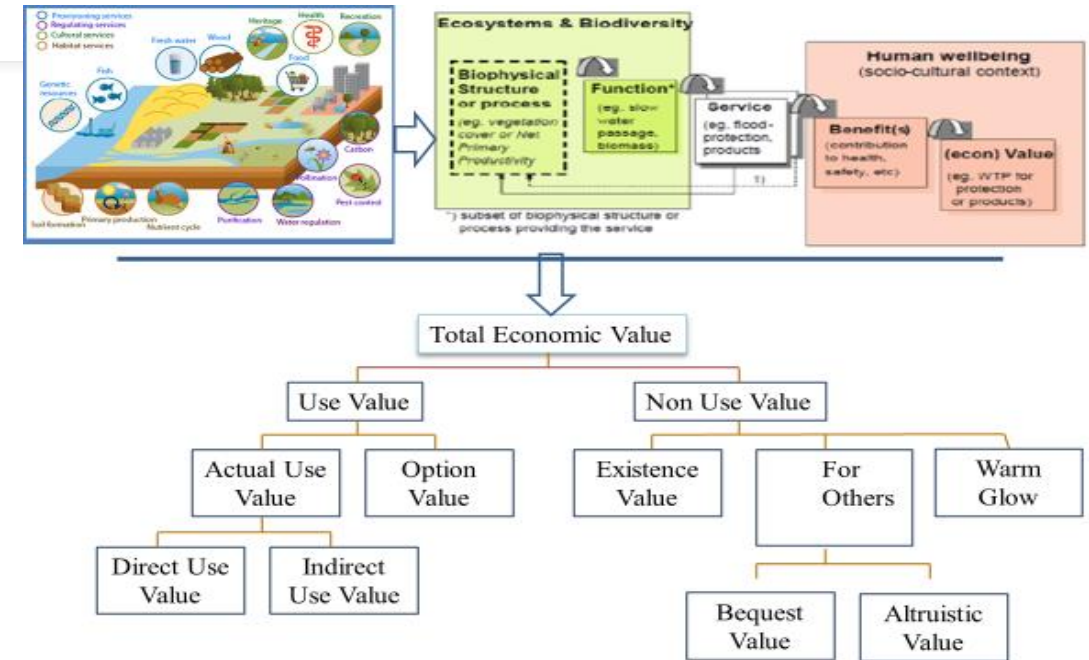
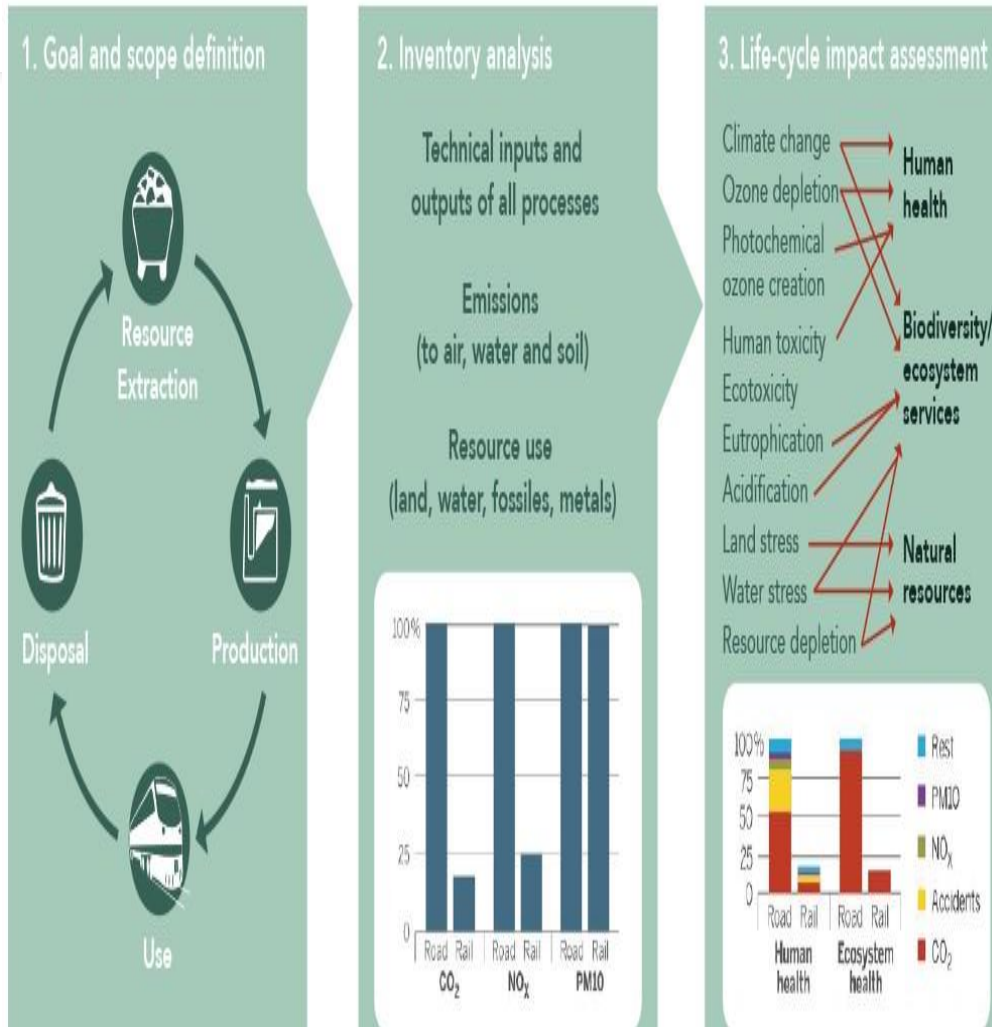
- **Power up:** lay the foundation for **hydrogen** lead markets in Europe and the related investments
- **Renovate:** improve the energy and resource efficiency of buildings
- **Recharge and Refuel:** promote future-proof clean technologies
- **Connect:** provide universal access to rapid broadband services
- **Modernize:** EU-ID and key digital public services
- **Scale up:** increase cloud capacities and develop powerful, cutting edge, and sustainable processors
- **Reskill and Upskill:** focus investments and reforms on digital skills and educational and vocational training for all ages



CIRCULAR ECONOMY

- Savings of 600 billion euro for EU Business, 8% of their annual turnover, Relevant for SMEs
- Creation of 580,000 jobs in innovative design and business models, research, recycling, re-manufacturing and product development
- Reduction of EU carbon emissions by 450 million tones by 2030
- Reducing Environmental Footprint: Optimize waste management will boost recycling and reduce landfill
- Public-Private Partnerships best model for financing the transition to CE.

Measuring Socio-Economic Benefits of CE Life Cycle Analysis (LCA) and Total Economic Valuation





INNOVATION FOR RESILIENCE



NETWORKING



ENTREPRENEURSHIP



Climate Change Adaptation Infrastructure

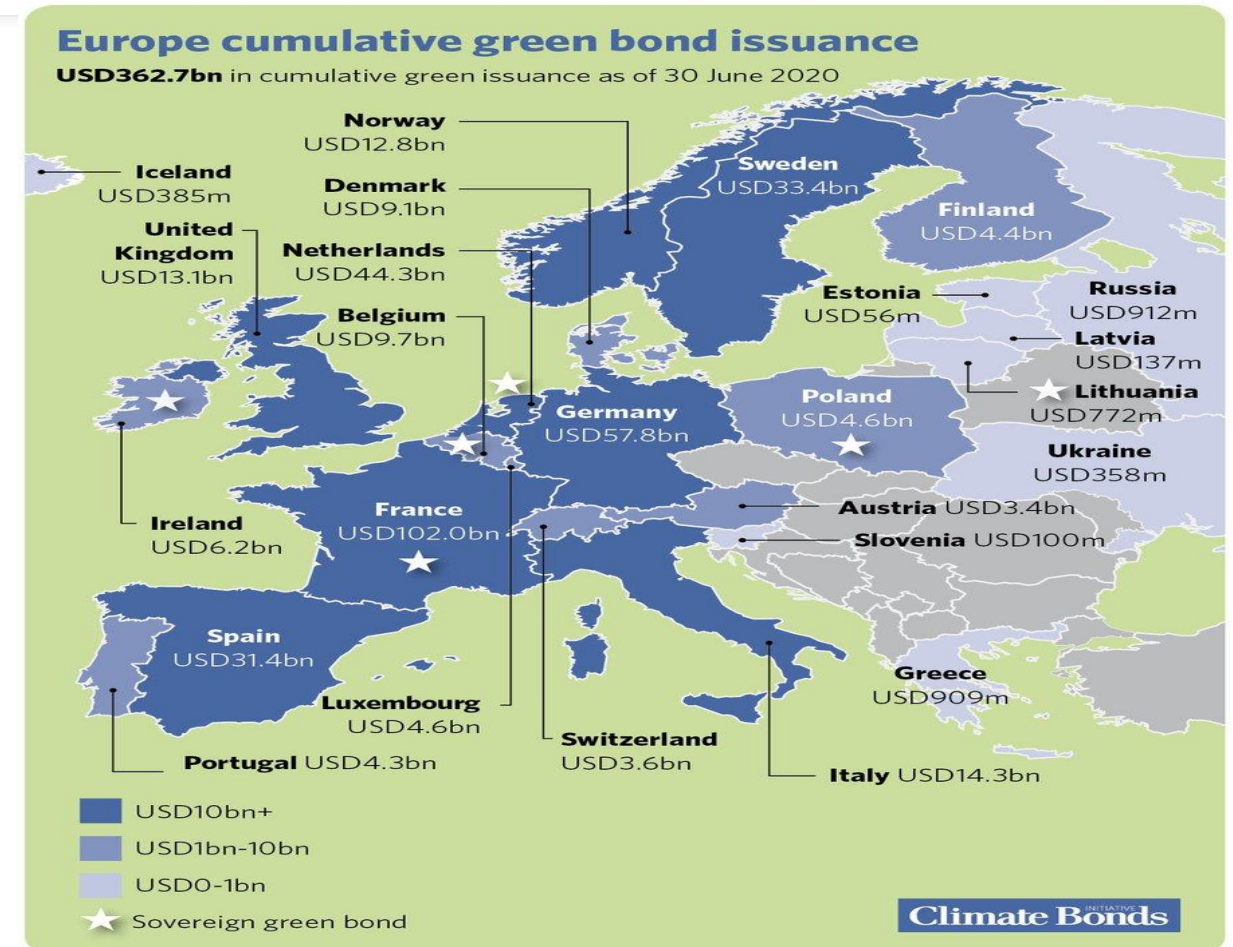
1. Adaptation programmes (early warning systems, making infrastructure resilient, improving dryland agriculture, or managing water resources) **generate a triple dividend**: avoided losses due to climate change, economic benefits from the investment programmes and social and environmental benefits.
1. **Vulnerability indexes (VIs)** should be developed: geographical/regional vulnerability; sectoral/economic vulnerability; and social vulnerability.
1. **Just Transition (Mitigation & Adaptation) Fund**

Efficiency-Equity-Sustainable Finance



Measures to counterbalance the regressive effects of decarbonization policies:

- Lump-sum transfers
- Reduction in income tax/ VAT or electricity tax
- Targeted energy efficiency measures
- Job retraining programs
- Compensation funds for low-income groups





Center for Sustainable Development
— EARTH INSTITUTE | COLUMBIA UNIVERSITY

TASK FORCE JOBS BASED GREEN RECOVERY

THE LANCET

Lancet Commission on COVID 19 engages global leaders to promote best practices in the control of the pandemic, the social protection of basic needs and the recovery of the global economy.

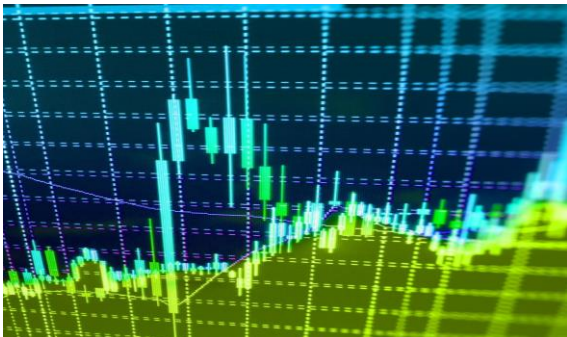
Lancet COVID-19 Commission Statement on the occasion of the 75th session of the UN General Assembly, The Lancet COVID-19 Commissioners, Task Force Chairs, and Commission Secretariat

Co-chairs:

- **Prof. Phoebe Koundouri**, President Elect of European Association of Environmental and Resource Economics
- **Dr. Ismail Serageldin**, Founding Director Bibliotheca Alexandria, ex Vice President World Bank
- **Dr. Min Zhu**, Deputy Managing Director IMF

THE LANCET COVID-19 COMMISSION

TASK FORCE JOBS BASED GREEN RECOVERY



Task Force: Job-Based Green Recovery

*Economic recovery plans should support the transition **towards sustainable and inclusive societies** based on the **SDGs** and the **Paris Climate Agreement**.*

***Public investment** should be oriented towards sustainable industries and the digital economy and should **spur complementary private investments**.*

*A major goal of the recovery should be an **unprecedented commitment to reskilling and upskilling people**, including the skills to prepare workers for the digital economy.*

*The **EU Green Deal**, long-term budget (2021–27), and new recovery fund marks an exemplary framework for long-term recovery, including mid-century goals on climate safety, energy transition, and circular economy, with a comprehensive €1.8 trillion budget.*

*EGD can serve as an exemplar for other regions. In general, recoveries should be **smart** (based on digital technologies), **inclusive** (targeting lower-income households), and **sustainable** (featuring investments in clean energy and reduced pollution).*

Cluster for Sustainability Transition

Transforming Research and Innovation into Climate Action

Director: Professor Phoebe Koundouri



OUR PROJECTS

UN SDSN GREECE
 ReSEES, AUEB
 EIT Climate-KIC HUB
 Greece

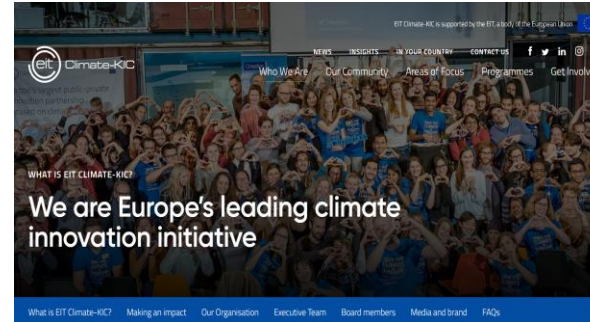
Cluster for Sustainability Transition Research, Deep Demonstration & Education

Research & Global Initiatives



Climate Change
Committee

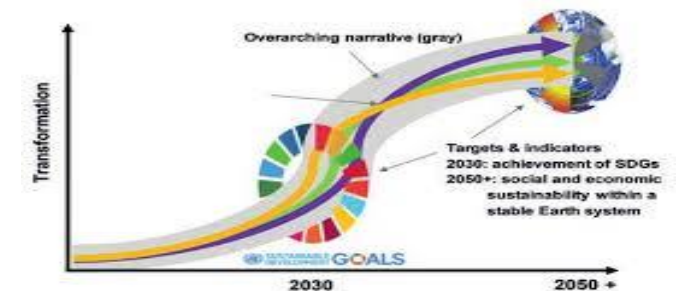
Deep Demonstration & Innovation Acceleration



Education & Training



ΚΕΝΤΡΟ ΕΠΙΜΟΡΦΩΣΗΣ ΚΑΙ ΔΙΑ ΒΙΟΥ ΜΑΘΗΣΗΣ



Projects Circular Economy & Climate Change

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**

Countries: Italy, Greece, Bulgaria
Implementation period: 2019-2020

Find more at: <https://www.athenarc.gr/el/circular-learning-hub-cl-hub-learning-hub-engagement-and-ecosystem-transition-towards-circular>



4-Seas Initiative

An initiative led by the regional networks SDSN Black Sea and SDSN Mediterranean and the national networks SDSN Greece, SDSN Italy, SDSN Spain, SDSN France, SDSN Turkey and SDSN Russia

GLOBAL ROUNDTABLE FOR SUSTAINABLE SHIPPING AND PORTS

• Aims at bringing together **researchers and technology developers, shipbuilders, shipowners, ports, policy makers and politicians**, from across the globe, to work on technological and policy innovations, related to zero emissions shipping, to target net-zero emissions by 2050.

• Find more at: <http://www.unsdsn.gr/global-roundtable-for-sustainable-shipping-2>



Transformation

Radical changes happening simultaneously, holistically and faster than we have ever experienced change before

Blue Growth

Blue
Europe

COASTAL
Collaborative Land-Sea
Integration Platform

Find
www
Impl
2009
Budg

COASTAL H2020 European Commission Project

a unique research and innovation project

a multi-actor collaboration between entrepreneurs, administrations, stakeholders and experts in coastal and rural natural and social sciences and sciences

aims to formulate and evaluate business solutions and policy recommendations to improve coastal-rural synergy to promote rural and coastal development while preserving the environment.

Find more at: <https://h2020-coastal.eu>
Implementation period: 2018-2022
Budget: € 5 million

Projects Water-Food-Energy Nexus and Smart Agriculture

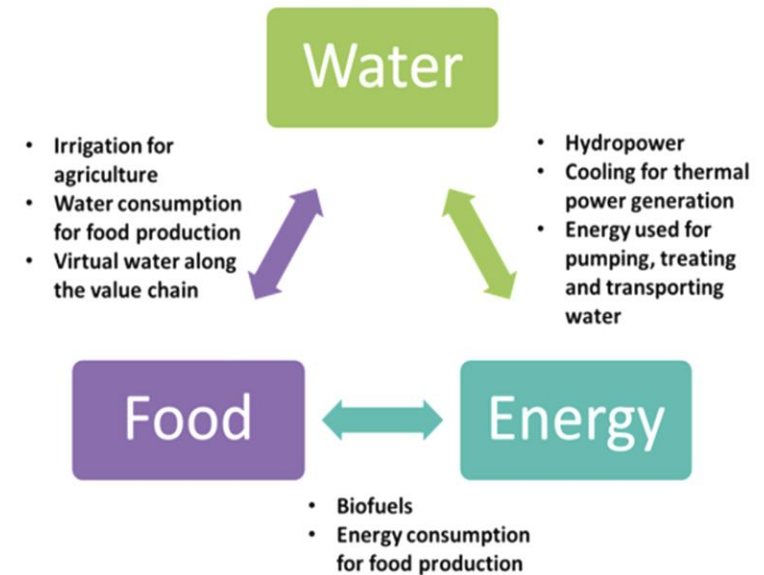


AWESOME - mAnaging Water, Ecosystems and food across sectors and Scales in the sOuth MEDiterranean

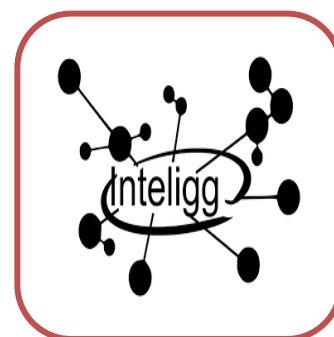
- a decision-analytic platform based on a multi-level, integrated WEF model to better understand multi-sectoral WEF tradeoffs and to capitalize on potential synergies, also exploring the interdependencies and feedbacks across a hierarchy of spatial scales,
- from the macroeconomic development of the Mediterranean region and national scale, to regional planning at river basin scale, down to the single farm.

Implementation period: 2019-2023

Budget: €1,7 million



Greek Start-ups



EarthFund Global

New international non-profit organization founded by pioneers in renewable energy & sustainability in the US and Greece. Partners with **Global Green** on a 10 Year Climate Mission.

THE MISSION

EMPOWER COUNTRIES TO MEET & EXCEED THEIR NATIONAL CLIMATE, CLEAN ENERGY & SUSTAINABILITY GOALS



EarthFund supports emerging technologies such as EarthIndex, the world's first clean energy platform designed to accelerate a country's ability to rapidly scale to 100% clean energy by 2030.

To achieve this, EarthIndex works with world-class technology companies, such as ESRI, and advisors from Google and EIT-Climate-Kic Silicon Valley, to develop a country/state level solution to change the game in clean energy development, starting in Greece and in California

HOW DO WE DO IT?

- INNOVATIVE EDUCATION PROGRAMS
- BREAKTHROUGH TECHNOLOGIES
- RELIABLE CAPITAL
- COMMUNITY-FOCUSED HOLISTIC CLIMATE SOLUTIONS
- COOPERATION & PARTNERSHIPS ACROSS ALL SECTORS
- GROUND-BREAKING TECHNOLOGY

3 PILLARS OF CHANGE



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