

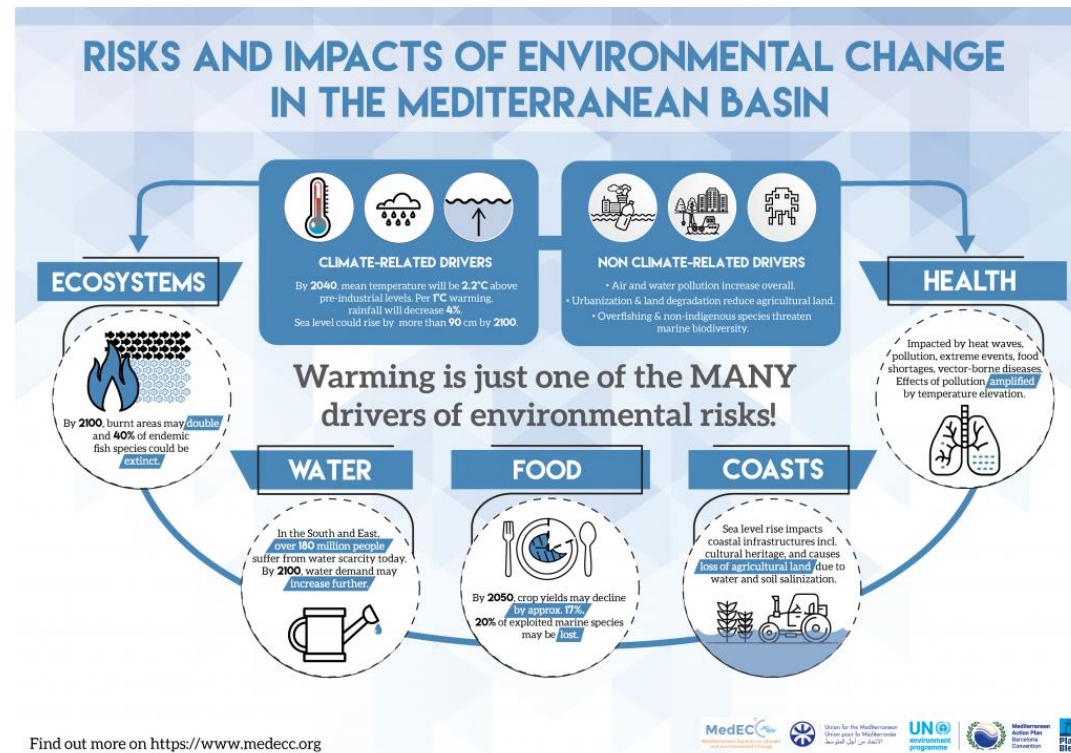
The Concepts of Sustainable Development and the General Context of Circular Economy

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WES Team Leader



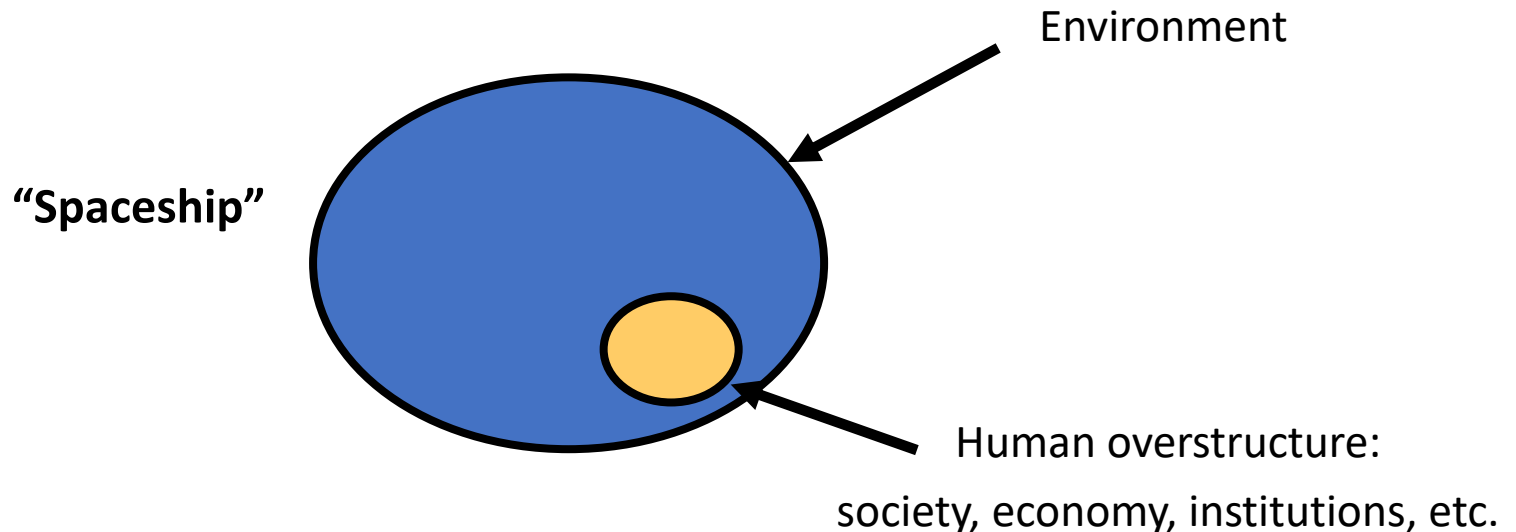
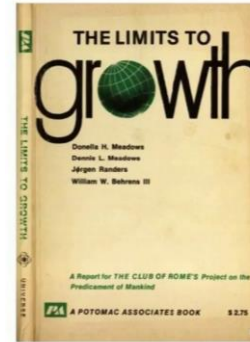
The Challenges ahead

- Around 11% of marine species and 14% of coastal terrestrial species are **threatened with extinction**, most of which are endemic.
- Unevenly (between the North and the South) **increasing population of over 500 million inhabitants** with growing energy demands.
- **Warming 20% faster** than the global average.
- **Intensive industrialization** putting pressure on available energy resources.
- **World's leading tourism destination**, receiving around 30% of international tourists.



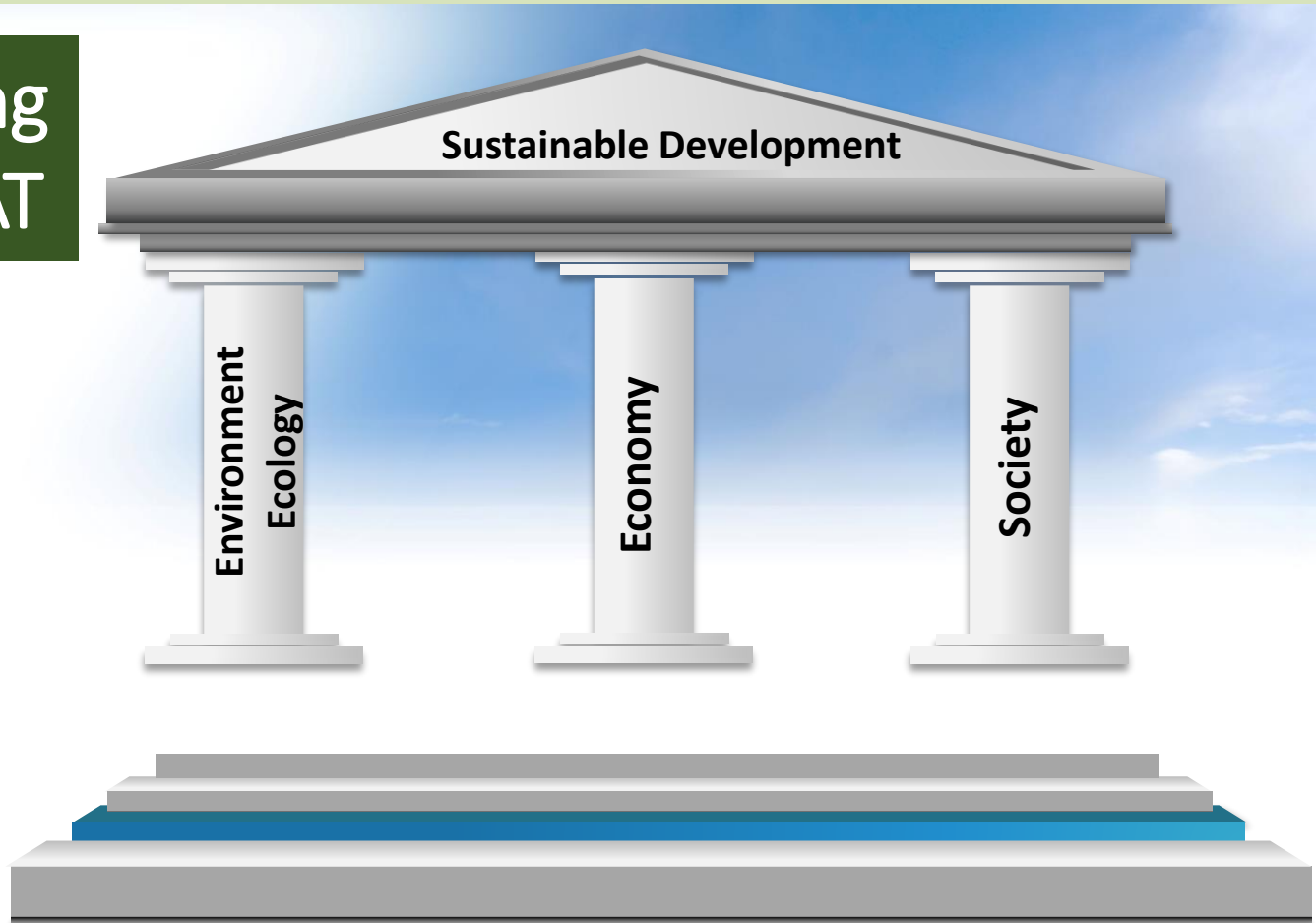
The notion of development through environmental protection

- The Limits to Growth (MIT, Club of Rome)
- Stockholm 1972



The notion of sustainable development

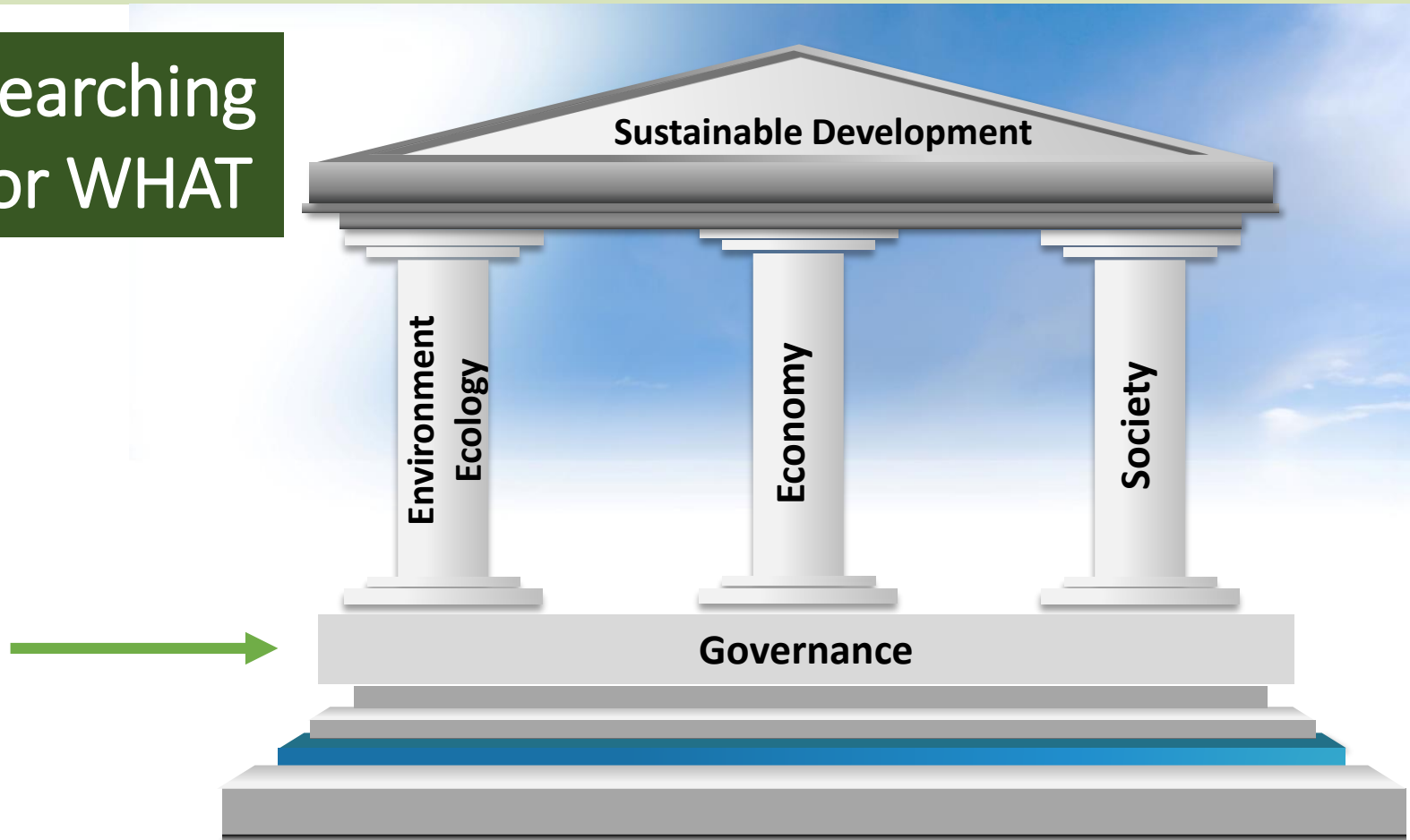
Searching
for WHAT



Agenda 21, the Rio Declaration on
Environment and Development, 1992

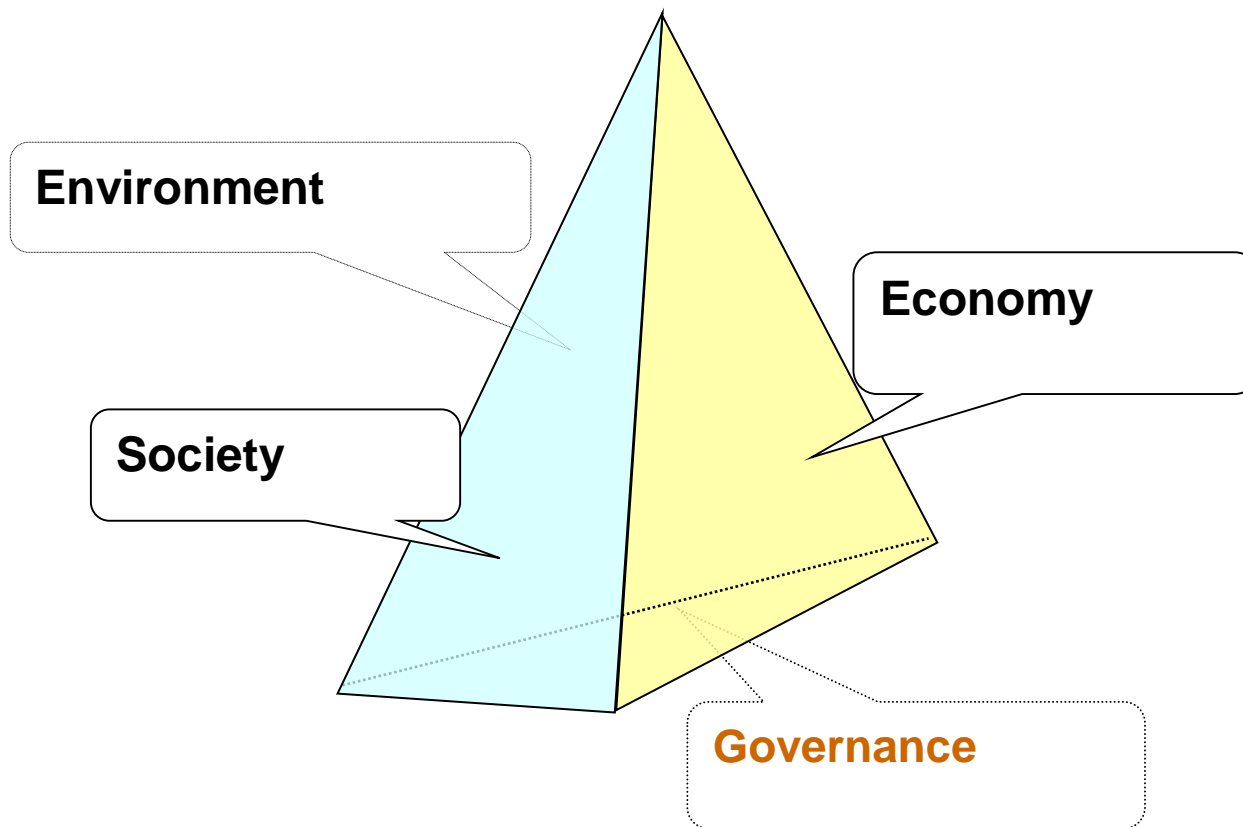
The notion of sustainable development

Searching
for WHAT



UNESCO Thessaloniki Conference
on Environment and Society, 1997

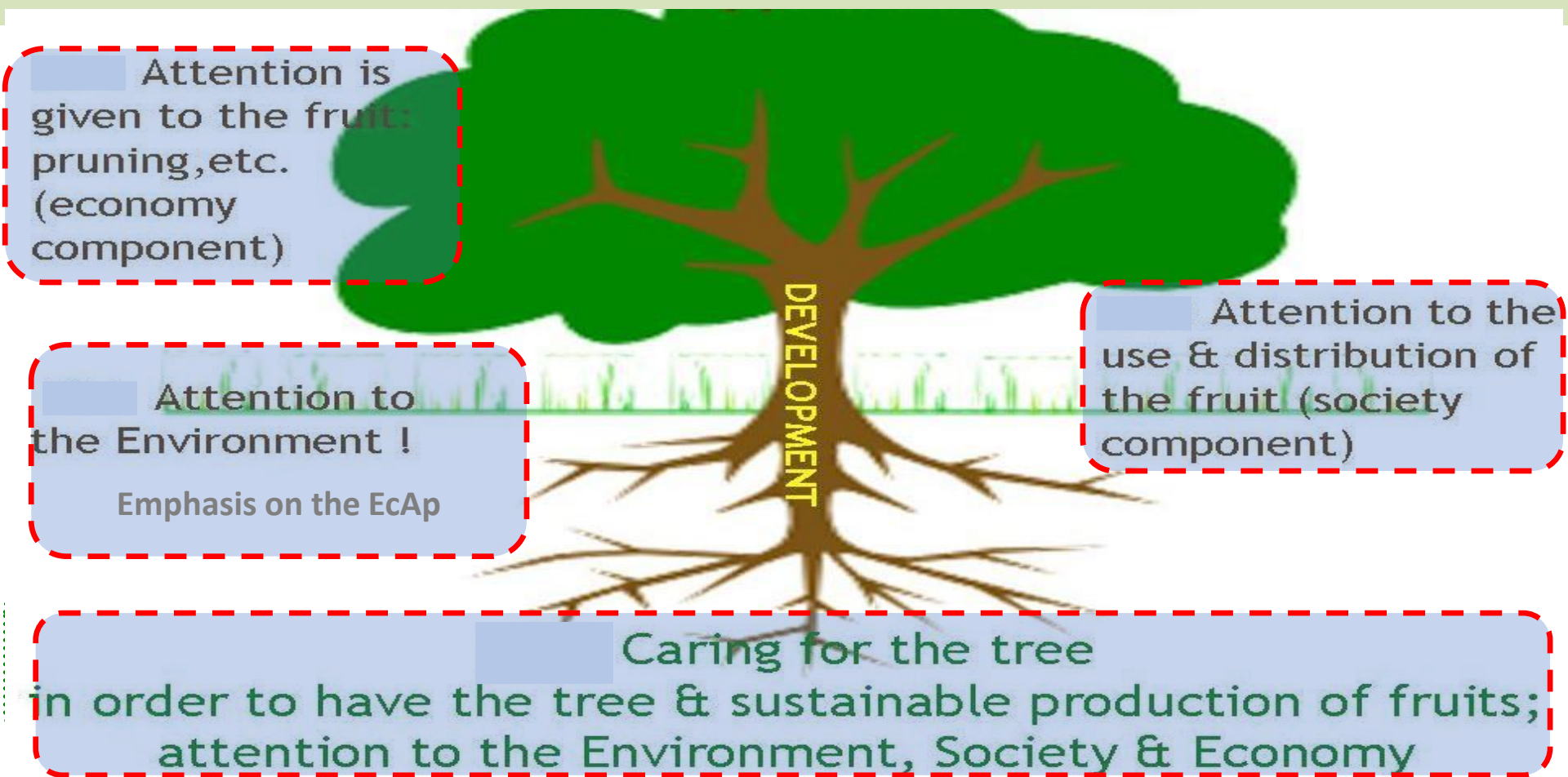
The notion of sustainable development



Assumption that the protection of the environment will lead to the right type of development

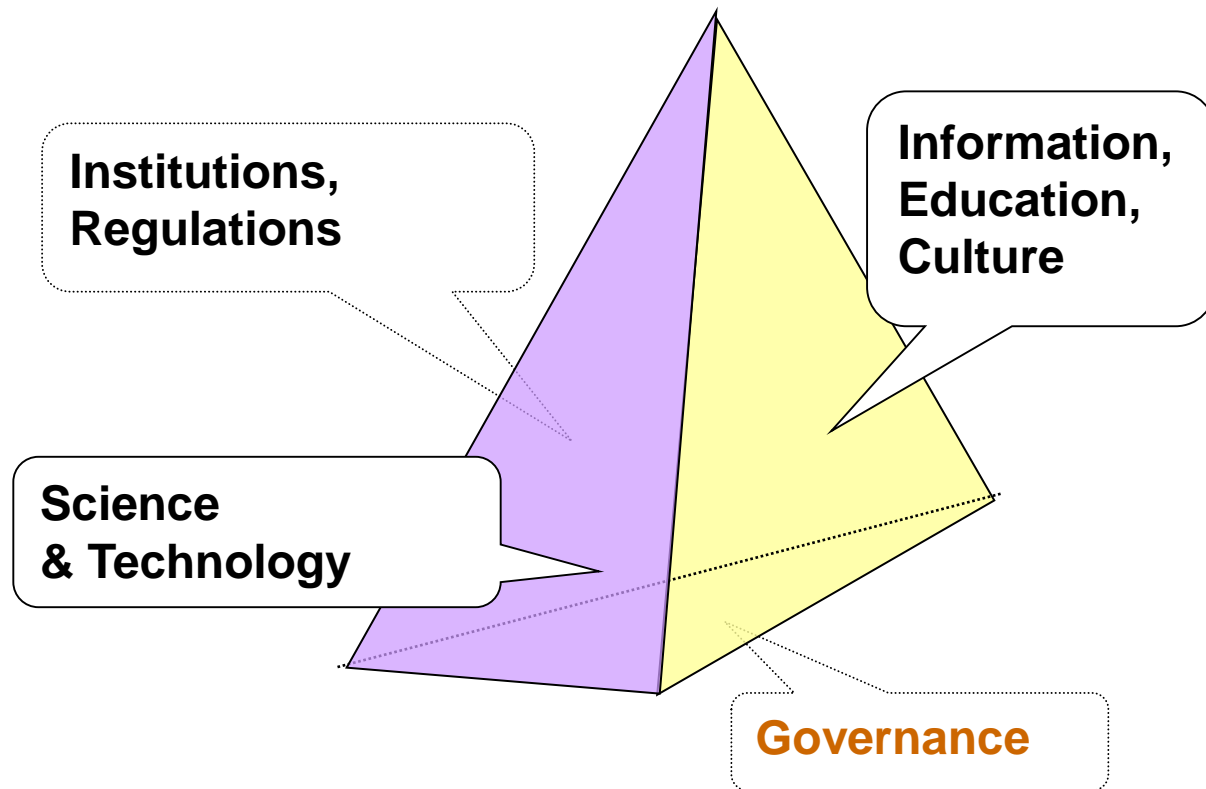


The Sustainable Development approach



The notion of sustainable development

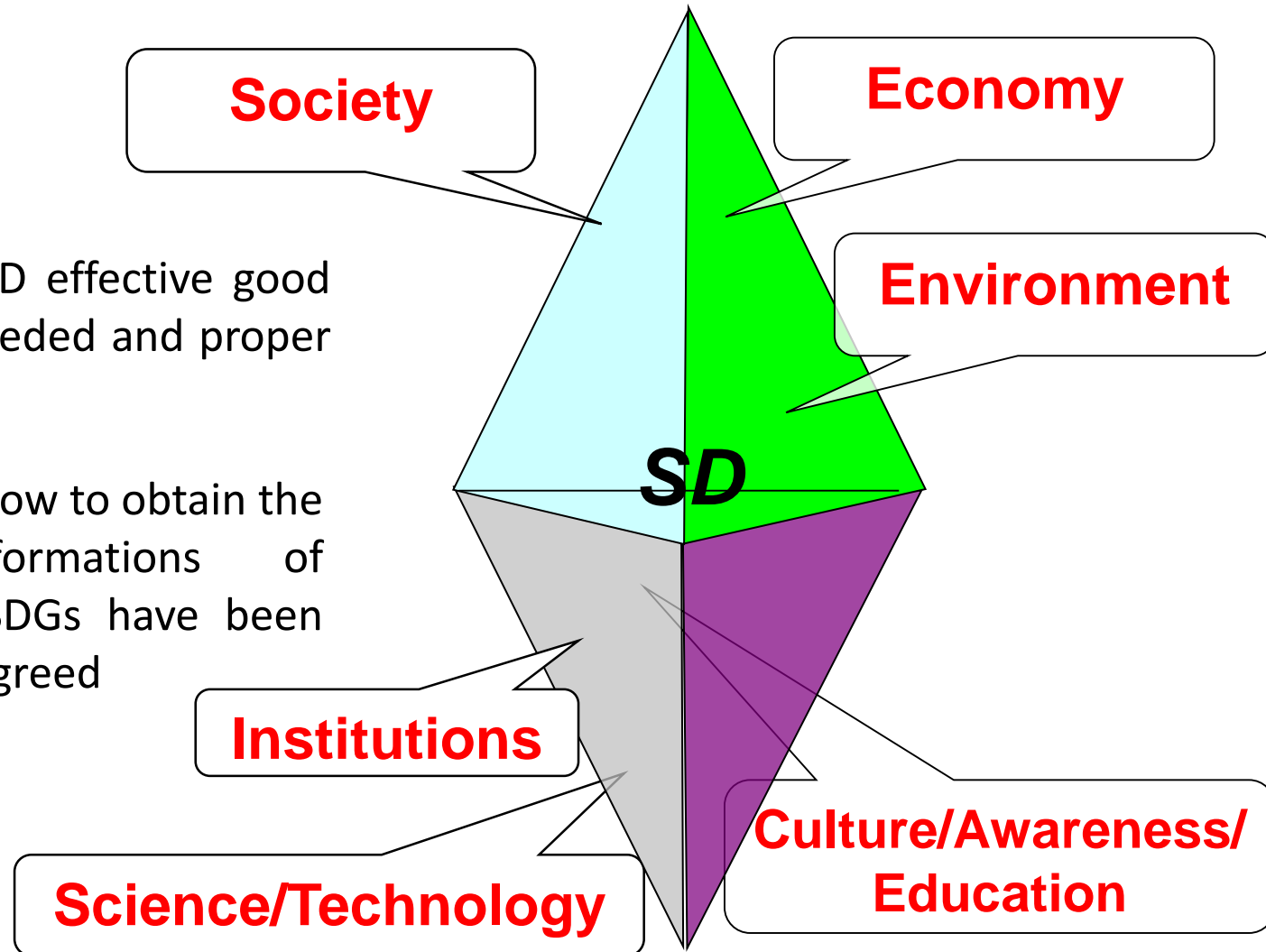
Analysis of the tools of Governance



Sustainable Development

Searching for WHAT

- For addressing SD effective good governance is needed and proper use of its tools
- In search of the how to obtain the needed transformations of economy, etc., SDGs have been elaborated and agreed



Sustainable Development Goals

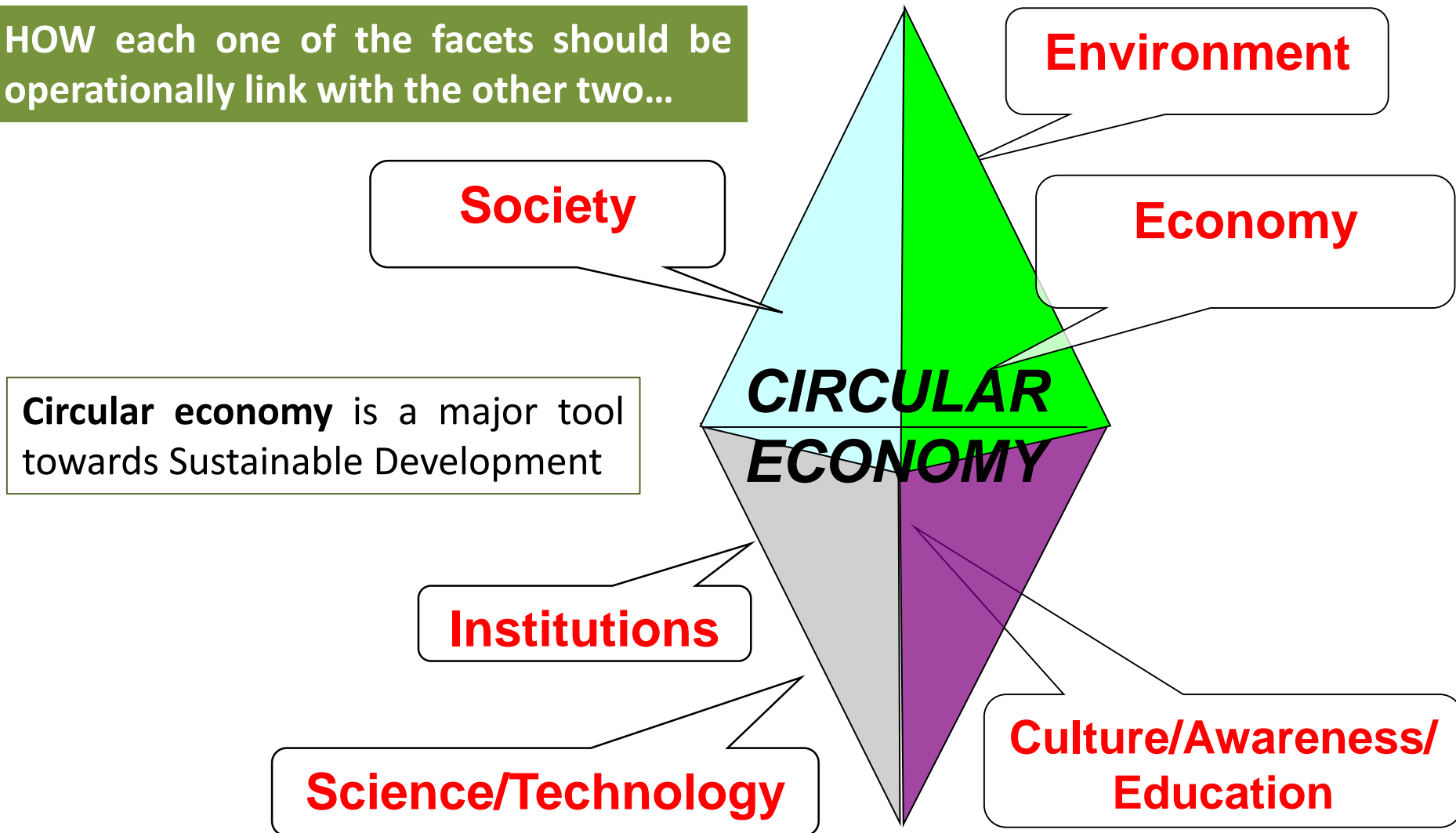
The transition from WHAT to HOW

The approved, in 2015, Agenda 2030 and the 17 SDGs (169 Targets and 230 Indicators) provide a new hope and opportunity to speed up this process.



Sustainable Development in operation

HOW each one of the facets should be operationally link with the other two...



Circular Economy



- As conceptual model of circular economy we can consider the basis of life: **photosynthesis** where the “waste” of respiration (CO_2) is the raw material for the “construction” of organic matter



- **The circular economy** is a term that has gained a great deal of popularity among both businesses and governments over the last few years. With its growth in usage, the number of ways in which the term is defined have proliferated.

Defining Circular Economy

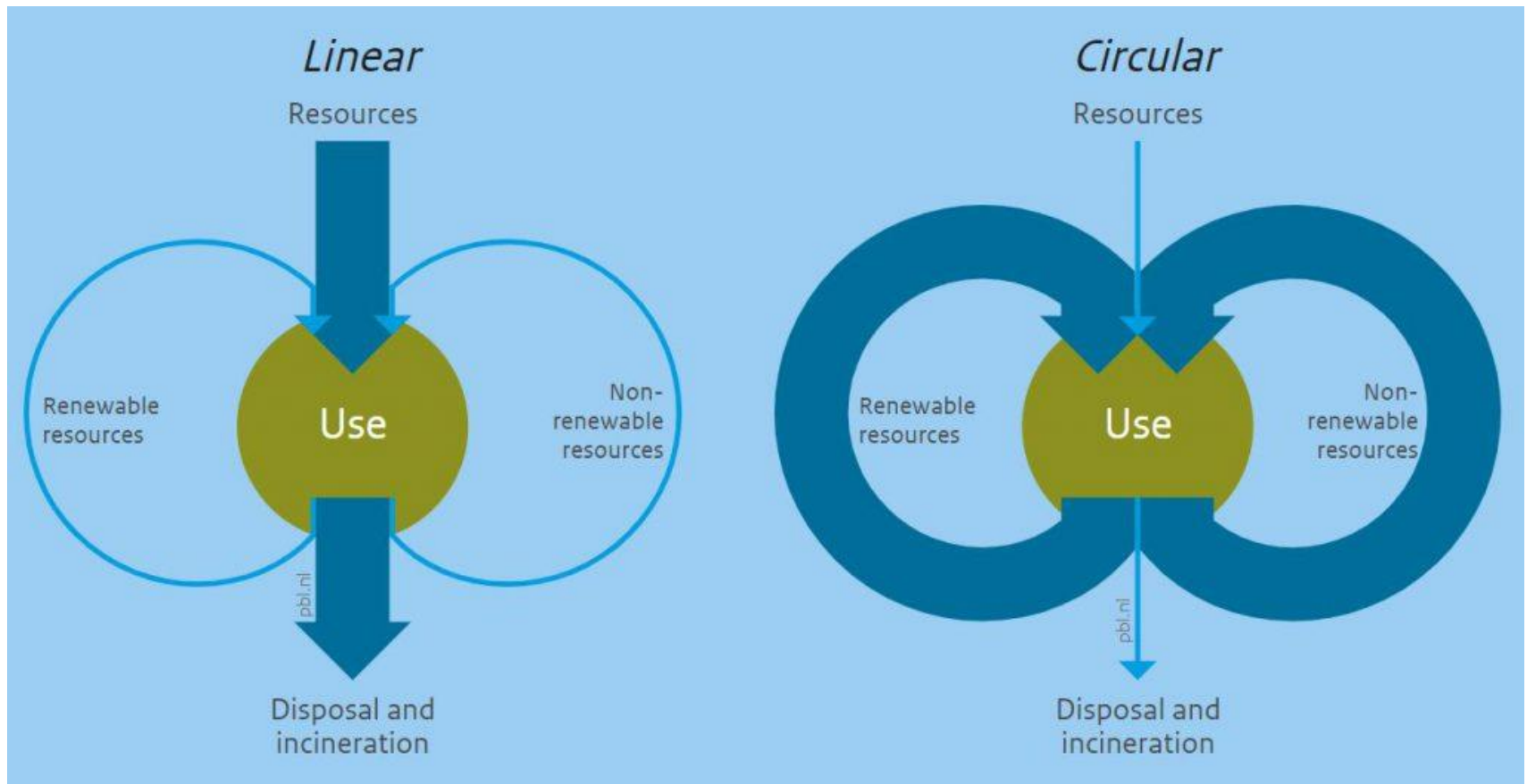
*The circular economy is a model of production and consumption, which involves **sharing, leasing, reusing, repairing, refurbishing and recycling** existing materials and products as long as possible. **In this way, the life cycle of products is extended.***

- The circular economy aims to transform our economy into one that is **regenerative**. An economy that innovates with the intention of reducing waste and the ecological and environmental impact of anthropogenic productive activities.
- This is done by designing new processes and solutions for the **optimization of resources** and **decoupling reliance on finite resources**, unlike the traditional linear economy.

The three principles required for the transformation to a circular economy are:

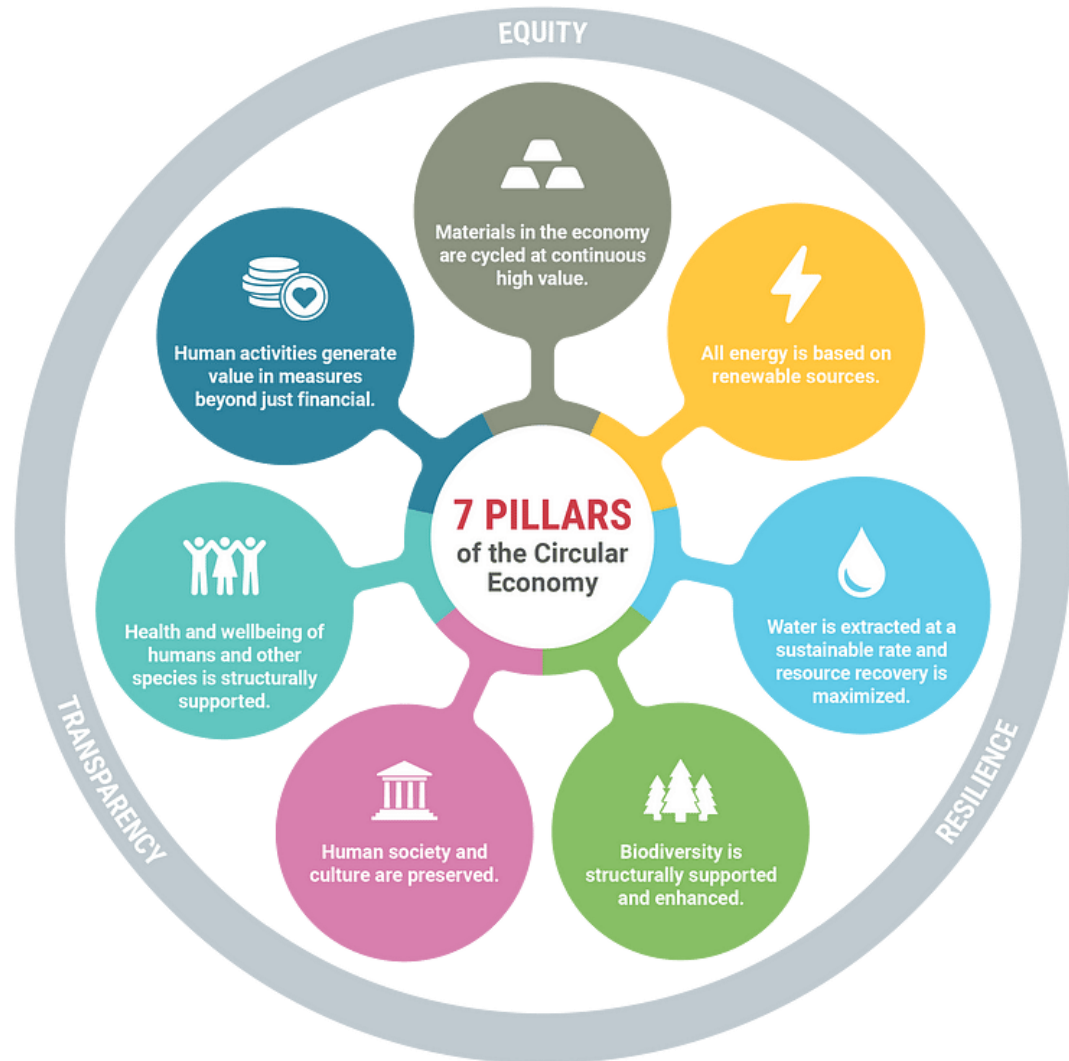
1. **Eliminating waste and pollution**
2. **“Circulating” products and materials**
3. **The regeneration of nature**

Visualizing Circular Economy



The Principles and the 7 “pillar areas” of Circular Economy

- **Equitable** – designed with principles of equity in mind, so it can, for instance, be affordable enough to actually be distributed throughout the system.
- **Transparent** – so you can track and trace the materials, and understand what is in the product.
- **Resilient** – making sure that there is a lot of knowledge transmission around how it works, and how it is supposed to be disassembled.



Sustainable Consumption and Production

Sustainable consumption and production promotes resource and energy efficiency, sustainable infrastructure and access to green and decent jobs and a better quality of life.

It is at the heart of progress towards building a circular economy that works for both people and planet in the long term.

The goal centres on the interconnectiveness of the private and public sectors, and encourages companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.

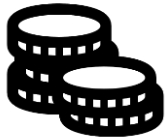


Ensure sustainable consumption and production patterns



Tools to be used in a coordinated way for enhancing Circular Economy

HOW?



Socioeconomic

Institutional and Legal Frameworks and Regulations
Financial and other incentives (green taxes, levies, charges, etc.), indication on products about their energy, water and material footprint.



Technological

Appropriate, clean technology, de-carbonization of energy and energy saving (building insulation, sun heaters), water saving systems, modern rainwater harvesting systems, material recycling, nature based solutions.



Cultural

Awareness raising and education (clean consumption and production, value of biodiversity and ecosystem services, intrinsic value of nature).

Critical role of agents for Circular Economy

WHO?



Consumers&People

Consumption, lifestyle and behavioural choices



Urban population: cities as critical hub for resource use and efficiency



SMEs: backbone of the economies but can be a critical gap in value chains



Business: manufacturing at the core of CE, business model innovation and scaling up



Finance sector: considerable investment from public and private sources



Policy-makers: sending coherent market signals through regulation and other instruments



Scientists and academics:

Technology innovation and scientific evidence



International organizations: consensus building and cooperation, best practice promotion, capacity development

Critical agents for Circular Economy: the role of Civil Society

WHO?

Educators

through **MEDIES** *Mediterranean Education Initiative for Environment and Sustainability*

6000+ members

Parliamentarians

through **COMPSUD** *Circle of Mediterranean Parliamentarians for Sustainable Development*

98 members



Journalists

through **COMJESD** *Circle of Mediterranean Journalists for Environment and Sustainable Development*

62 members

Universities

through **MedUnNET** *Network of Mediterranean Universities for Sustainable Development*

20 members

WHERE?

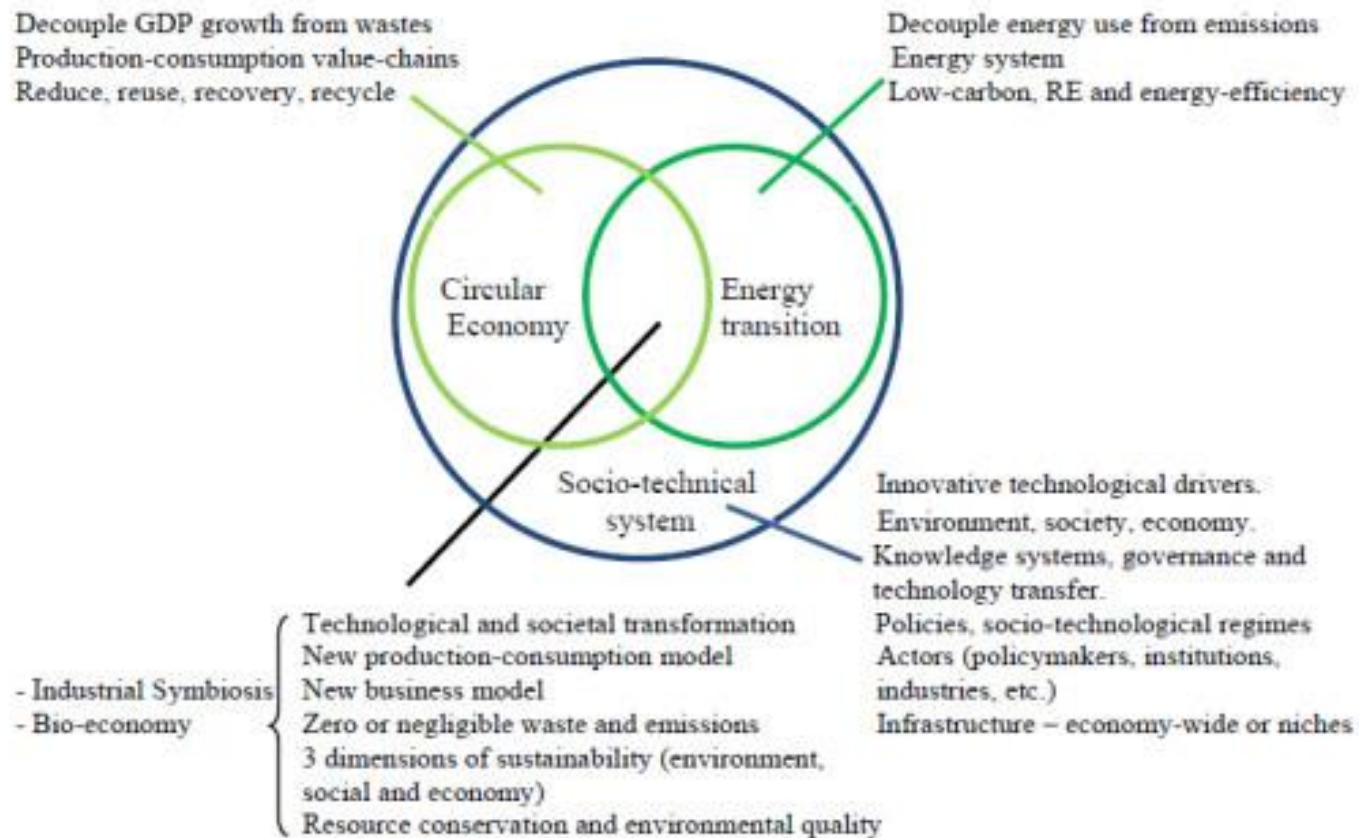
Searching and adjusting operations in
each economic sector

Circular Economy: Renewable Energy

- Oil and gas energy resources are incompatible with the idea of a circular economy.
- A sustainable circular economy can only be powered by **renewable energies**, such as wind, solar, hydropower, and geothermal.
- Renewables are intermittent, meaning that they need the support of batteries to store clean energy for use when the sun isn't shining and the wind isn't blowing. **Battery storage is vital.**
- The barriers and potentials connected with both and their coupled transitions is dependent on the country's development stage (economic and infrastructure development), institutions, technological capacity and political will (evident in effective and enforceable legislations).



Circular Economy: Renewable Energy



Circular Economy: Agriculture

- Circular agriculture focuses on using **minimal amounts of external inputs, closing nutrients loops, regenerating soils, and minimizing the impact on the environment**
- If practiced on a wide scale, circular agriculture can reduce resource requirements and the ecological footprint of agriculture.
- It can also help ensure a reduction in land-use, chemical fertilizers and waste, which makes it possible to reduce global CO2 emissions.
- Circular agricultural practices:

- ✓ **Mixed farming**
- ✓ **Organic agriculture**
- ✓ **Agroforestry**



Circular Economy: Agriculture



Circular Economy: Tourism

- Travel industry actors have an important role as enablers within the circular transition – **largely through how they source, use or consume products, materials and resources, and how they support and enable product, material and resource recovery at the end-of-use.**
- All tourism actors need to learn and embrace concepts such as **‘deep cooperation’, ‘value co-creation’, ‘destination carrying capacity’, ‘system optimisation (instead of commercial silos maximisation)’, ‘purpose driven operations’.**



Circular Economy: Tourism



Circular Economy: Chemical industry

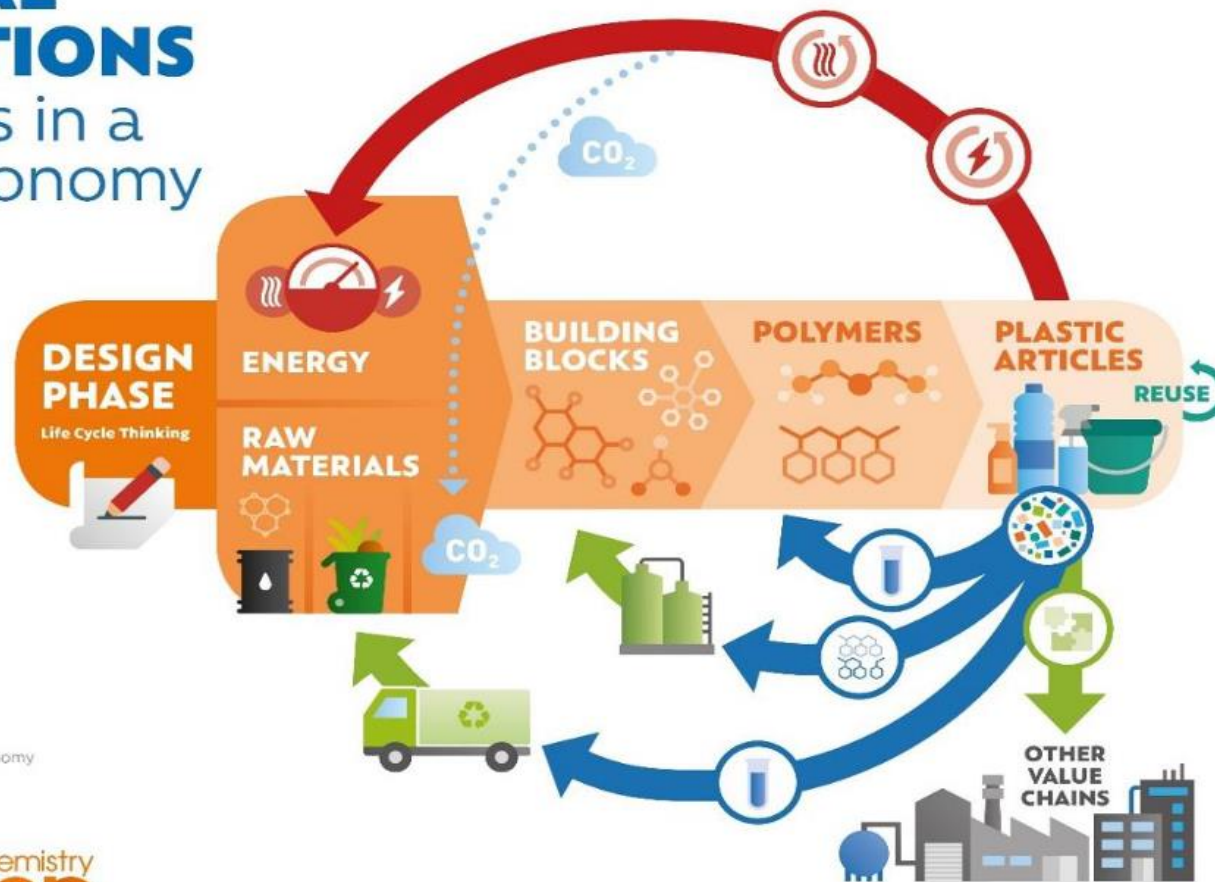
- The sector offers solutions to keep materials in the loop as long as technically and economically possible through **reuse of materials, extension of lifetime using more durable materials, resource recovery** and **different types of waste recycling technologies**.
- Other examples where the chemical industry plays an important role in the transition to a circular economy include: **the use of metals of recycled batteries to produce battery materials offering significant CO2 reduction in the production of electric vehicles; the recycling of wind turbines coming to their end of life; and industrial symbiosis** where significant resource savings can be made because of an integrated production approach.



Circular Economy: Chemical industry

CHEMICAL INNOVATIONS FOR Plastics in a Circular Economy

-  Production chain
-  Recycling technologies
Grinding, washing, compounding,
Depolymerization, solvent extraction,
controlled bio-degradation
-  Secondary raw materials
-  CO₂ utilization
CO₂ as raw materials
-  Energy recovery
Heat, electricity



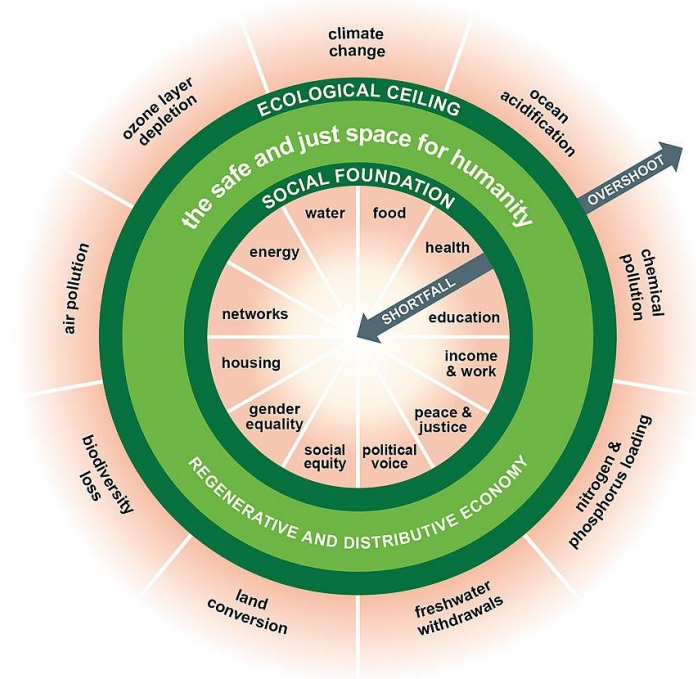
For more information about the Chemical industry's commitment to the circular economy please check our website www.cefic.org

Follow us on social media: @Cefic



The way forward

- Currently, the “Doughnut Economics” are being proposed to regard the performance of an economy by the extent to which the needs of people are met without overshooting Earth's ecological ceiling.
- It is a visual framework for the progression of circular economy combining the concept of planetary boundaries with the complementary concept of social boundaries.



Conclusions

- Circular economy is an important model towards achieving Sustainable Development.
- Circular economy alone cannot transform the current economy into a sustainable one.
- There is a need to revisit basic prerequisites and prosperity indicators such as GDP.
- We need to change the symbols of success and status in our society.