

# Ch1. Frame: Green economy, sustainable energy and sustainable development

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Spring 2022 - NHH

# Discussion

What do you understand by **green economy**, **sustainable energy**, **sustainable development**?

How do you **frame** the discussion around those concepts?

- Should we frame the discussion as a **technological** problem?
- Should we frame the discussion as an **economic** problem (taxes, regulation, prices, incentives)?
- Should we frame the discussion as a **political** problem? Gender, poverty and inequalities (cities vs rural areas; "developed" vs "underdeveloped countries"), biodiversity, environment, etcetera

# Introduction 1

In chapter 1, 2 and 3 we **frame the course** by introducing the **topics** and the **structure** of the course

- Should we introduce a **gender** perspective to talk about sustainable energy and development?
- Should we introduce **cities** to talk about sustainable energy and development? Should we also introduce **rural areas**?
- Should we change the policies in "**developed**" **countries**? Should we change the policies in "**underdeveloped**" **countries**?

How we frame the discussion is a **political decision**, not a **technological** or an **economic decision**

We will introduce the concepts: **Green economy**, **sustainable energy** and **sustainable development**

# Introduction 2

The objective of the course is to provide an **holistic view** by integrating the analysis of **sustainable energy** and **sustainable development** by, as Sharachchandra Lele proposes, moving beyond a narrowed framing of the problem:

- **One value** (sustaining future generations)
- **One problem** (climate change)
- **One goal** (reduce carbon emissions)
- **One solution** (renewables)

The multilateral organisms, as the United Nations Development Program are following that **holistic approach**:

- **Sustainable energy**: Footprint
- **Sustainable development**: Human Development Index

# Green economy concept

The term "green economy" is based on **multiple conceptual grounds**

In fact green economy as a concept has **evolved from**, and been **influenced by**, many **different schools of economic** thought

The green economy concept became popular outside of academic circles right after the **2008-2009 global financial crisis**

During that crisis numerous countries implemented **green economy stimulus packages** to reinvigorate production and consumption

At the time, the available definition of green economy was provided by United Nation Environmental Program (UNEP): **"A green economy is low-carbon, resource efficient and socially inclusive"**

# Green economy concept

The question remains: What does a **green economy** really entail?  
Conceptual choices about a green economy can cover a **wide spectrum**:

- From larger aspects of sustainability
- To narrow concerns about environmental pollution

There also seems to be consensus about what a **green economy** should **incorporate**:

- Job creation
- Poverty alleviation
- Reduction of greenhouse gas emissions
- Investments in natural capital and ecosystem services
- Improvements in social equity and human well-being
- Increases in resource efficiency

# Green economy: Conceptual background

The term "green economy" is based on multiple conceptual grounds:

- Agricultural economics
- Welfare economics
- Natural resource economics
- Environmental economics
- Energy economics
- Ecological economics

# Agricultural economics

Between 1940 and 1970 the term "Green economy" was associated to the concept "Green revolution"

The concept "Green revolution" used the term green economy to refer to the **positive impacts** that **research and technology** development had on agricultural productivity

The "Green revolution" had also **negative impacts** as the appropriation of common knowledge by the multinationals (patents of seeds, biopiracy), the use of pesticides, mono-cultivates, etcetera



# Welfare economics

This school of economics is concerned with the effects of economic activities on **welfare** or **well-being**

Welfare economics provides the basis for the "**market failure**" concept, which can be simply understood as the idea that if incorrect price signals are sent, market economies fail to achieve efficiency

Another aspect that is also captured by both welfare economics and the term green economy is **economic inequality**, that is, the uneven distribution of income and wealth

# Natural resource economics

This school of economics deals basically with the supply, demand, and distribution of **renewable** and **depletable resources**

A key objective for natural resources economics is to find ways **to manage resources efficiently and sustainably** so that they are available to future generations

In principle, a **green economy** should guarantee the capacity of natural capital that provides resources and environmental services in the long run

# Environmental economics

For environmental economists pollution is understood as a **negative externality**, take air pollution for example

If an economic activity is reducing air quality, the health or welfare of a third party may suffer as a consequence

Environmental economists attribute this to the **absence of prices** for environmental assets like clean air, biodiversity and clean water

Relying on the idea of sustainable development and also on the theory, the methods and the policy options provided by environmental and natural resource economics, Pearce, Markandya and Barbier framed the term green economy in the late 1990s around **technology innovation, resource efficiency natural capital, ecological risks and human development**

# Energy economics

Energy economics focuses on how the **economic system** can pursue growth by bringing together economic, environmental, social, and technological aspects through the expansion of clean energy production, distribution and consumption

# Ecological economics

Aspects of **ecological scarcity** and **social equity** included in the **green economy** term have also been put forward by **ecological economics**

There is a growing body of knowledge that shows the rapid **loss of ecosystems**. This situation has encouraged investment in and conservation of **natural capital**, which is also a critical aspect for the modern interpretation of the term **green economy**

**Conventional or neoclassical economics**, according to ecological economists, does not reflect adequately the value of essential factors such as clean air and water, species diversity, or social and generational equity

To address this, ecological economists advocate a **transdisciplinary** approach

# Sustainable energy and development

**Sustainable energy** is energy produced and used in such a way that it "meets the needs of the present without compromising the ability of future generations to meet their own needs." (Kutscher, 2019)

It is similar to the concepts of **green energy** and **clean energy** in its consideration of environmental impacts, however formal definitions of sustainable energy also include **economic** and **social impacts**.

We will study the concept of sustainable energy and we will study the relation between **sustainable energy** and **sustainable development** in chapters 3 and 4

# Summary

1. **Frame the discussion:** green economy, sustainable energy and sustainable development
2. **Green economy** concept
3. "Green economy" is based on **multiple conceptual grounds**:
  - Agricultural economics
  - Welfare economics
  - Natural resource economics
  - Environmental economics
  - Energy economics
  - Ecological economics
4. **Sustainable energy and development**