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Sustainable Development: Defining the Concept and Discoursing the Role of Education

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Introduction

Background

- Although there are evidently different assumptions, operationalization strategies, theoretical approaches, and conceptual discussions, the concepts of **sustainable development** (SD), **green economy** (GE), and **circular economy** (CE) are considered a common avenue to conciliate economic, social, and environmental goals (Korhonen et al., 2018; Geissdoerfer, 2017; Schroeder et al., 2018; D'Amato et al., 2019).
- The awareness of the **opportunities** and **potential benefits** associated with these concepts is significantly increasing among corporate companies/countries around the globe and in fact, they have started to harvest **economic, social, and environmental advantages** (EMF, 2013b).
- Recently, these concepts have **gained increased attention** from academic scholars (Chertow and Park, 2016), international development practitioners (Gower and Schroeder, 2016), multinational firms (Lacy et al., 2014), and policymakers in developed countries (EC, 2015) and in some emerging economies, such as China (Yuan et al., 2006; Mathews and Tan, 2011).

Defining and Understanding Sustainable Development

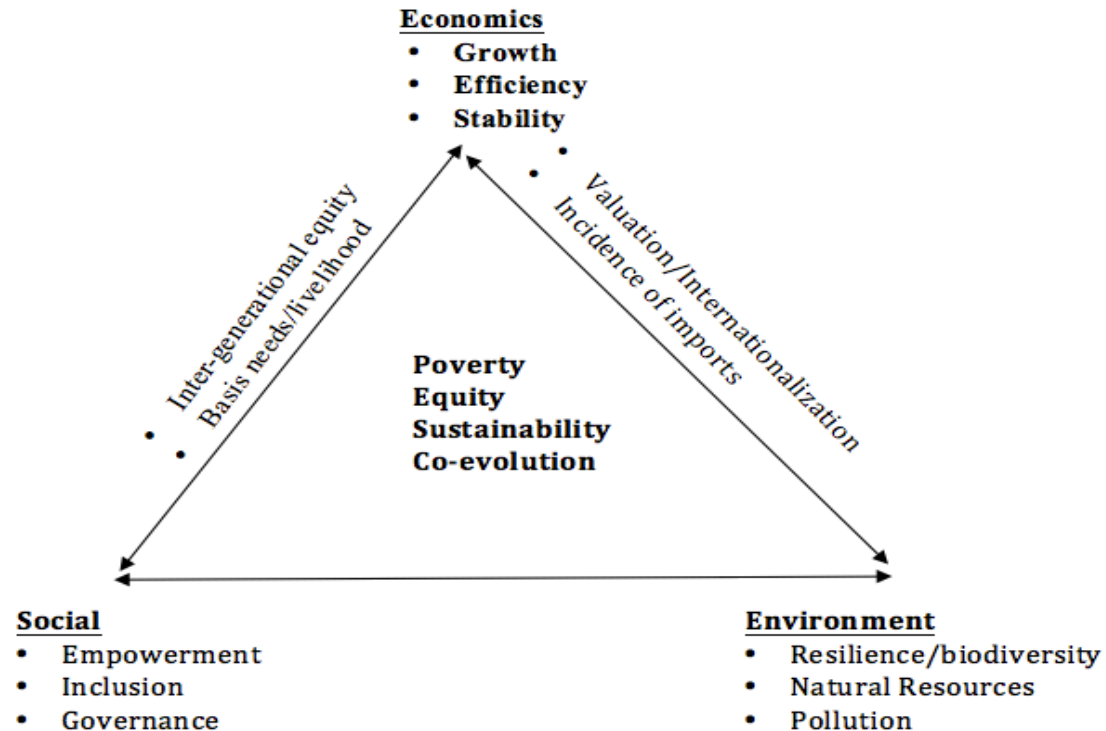
- According to Brundtland (1987) report, sustainable development is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.
- Two fundamental questions arise: First, *what* exactly should be sustained within the framework of sustainable development? Second, *how* it should be sustained?
- First, the utility of future generations should be sustained. It implies that the utility function of future generations has to be *non-declining*.
- Second, according to Day (2006), in order to get sustainable development, physical throughput should be sustained.
- The flow of physical material from the *sources of nature* to the economic system and back from the economy to nature’s *sinks* should be *non-decreasing*.

Defining and Understanding **Sustainable Development**

The SD concept has evolved over time by interacting three major points of view: **economic, social, and environment**.

Each of the viewpoints has a distinct system, which has its own **domain, well-defined objectives, and driving factors**.

The economic system focuses on **human welfare and well-being** mainly through increasing the **consumption of goods and services**.



Source: Adapted from Munasinghe (1992, 1994).

Defining and Understanding **Green Economy**

- **Green economy** is an emerging concept and the “London Environmental Economics Centre (LEEC)” introduced this concept first time in 1989 (Pearce et al., 1989).
- According to the United National Environment Programme (UNEP) (2011), “[GE] results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.
- A common theme emerged from different definitions is that GE provides effective and practical nature-based solutions to the socio-economic problems faced by the economy and society.
- The policies favoring GE will minimize environmental degradation and reduce the adverse influences of energy-supply shocks, scarcity of water and clean air, and depletion of natural assets (Young and Tilley, 2006).

Defining and Understanding Circular Economy

- **Scholars** highlighted the interconnection between the environment and economic activities and identified a **closed-loop material flow** in which the economic system takes place which stands on an assumption of “*everything is an input to everything else*” (Su et al., 2013).
- Similarly, **Stahel (1982)** introduced the concept of providing goods **at rent** for **utilization** purposes rather than the **transfer of ownership** as the most sustainable business for a loop economy.
- CE emphasizes the necessity to **re-design** the traditional “**take-make-dispose**” linear path of production and consumption (**Geng and Doberstein, 2008**).
- The basic motive is to keep **utilizing products** rather than **waste them**. CE is also functionalized four R-strategies i.e. **repair, reuse, recondition, and recycle**.

Interconnections

Linking CE, GE, SD, and Sustainability

- Undoubtedly, the **sustainability** concept has emerged as one of the most pressing challenges of our age.
- All three concepts (CE, GE, and SD) are viewed as **operationalization** for businesses to **implement** the concept of sustainability (Ghisellini et al., 2016; Murray et al., 2017).
- For achieving local, national and global **corporate sustainability**, there is a need for greater **identification** and **understanding** of contemporaneous requirements in a holistic and inclusive manner.
- Linking visions and targets of policymakers, practitioners, and businesses to **fundamental sustainability goals and issues** is vital for attaining long-term **social-ecological sustainability and objectives** at different levels (Addison et al., 2018; Bjorn et al., 2016; Whiteman et al., 2013).

Interconnections

CE, GE, and SD

The table presents some **common potential** economic, social, and environmental benefits associated with all three concepts.

Table 1: Potential Benefits of CE, GE, and SD

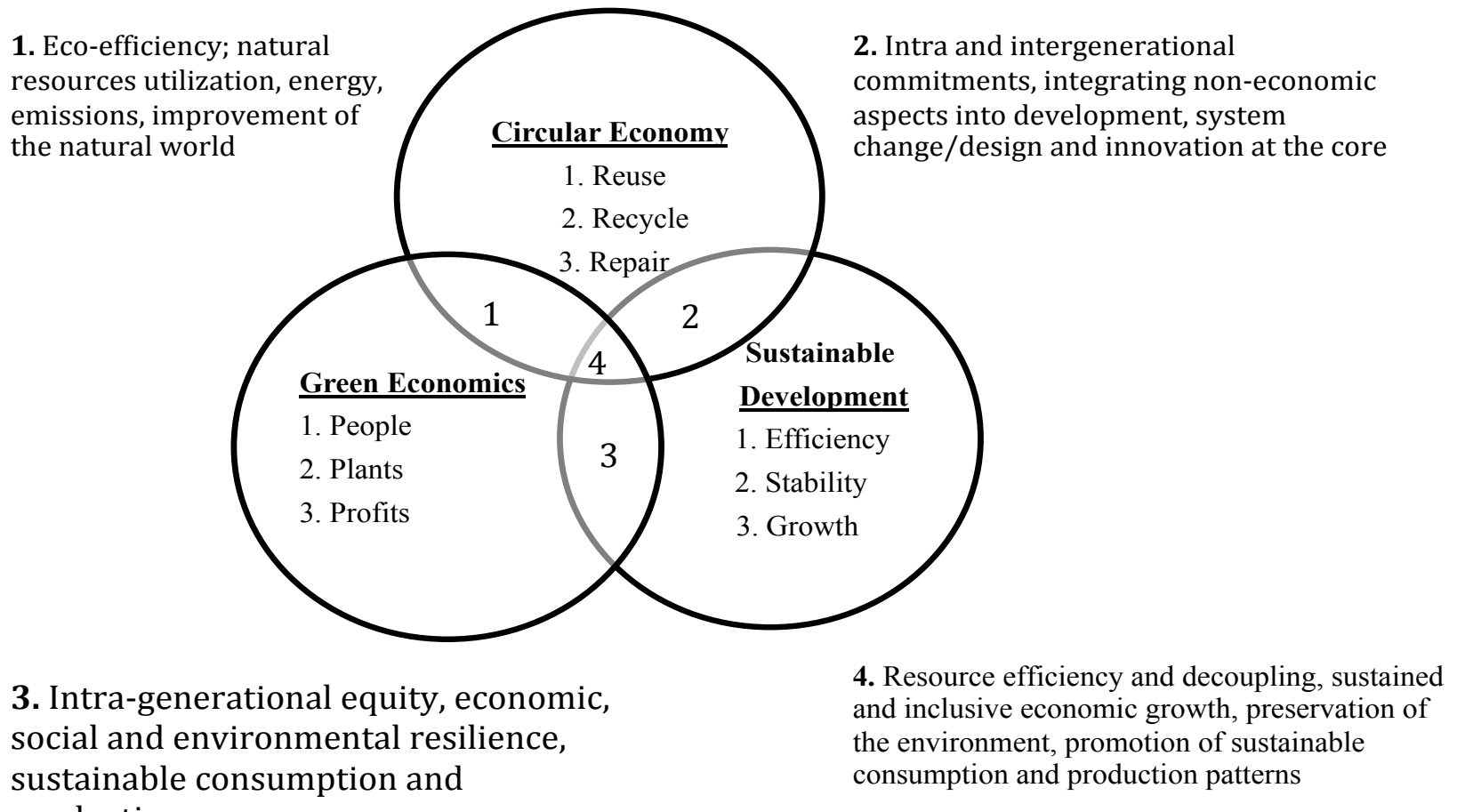
Economic Benefits	Social Benefits	Environmental Benefits
<ul style="list-style-type: none"> • Cost reduction • Increased productivity • New jobs • Higher profits • Diffusion of technology • Value addition • Low inequality • Internalizing externalities • Less market disturbances • Increased financial and economic stability • Fast, persistent, and green growth 	<ul style="list-style-type: none"> • Inter and intra-generational equity • Poverty alleviation • Fair taxation • Circularity of resources • Social inclusivity • Social linkages • Social justice • Socio-efficiency • Better working condition • Less social vulnerability • Narrowing inequalities 	<ul style="list-style-type: none"> • Less resource depletion • Less biodiversity loss • Less water, air, and soil pollution • Less land use • Less waste and emissions • Less use of material and energy input • Less environmental degradation

Source: Authors' own construction.

Interconnections

CE, GE, and SD

Figure 2: Interconnections between Circular Economy, Sustainable Development, and Green Economy



Source: Authors' own construction.

Sustainable Development Goals

17 Goals to Transform the World



The Role of Education Labor to Human Capital

The **Solow–Swan** model or exogenous growth model

$$Y(t) = [K(t)]^\alpha [A(t)L(t)]^{1-\alpha}$$

where

Y = Output

K = Capital Stock

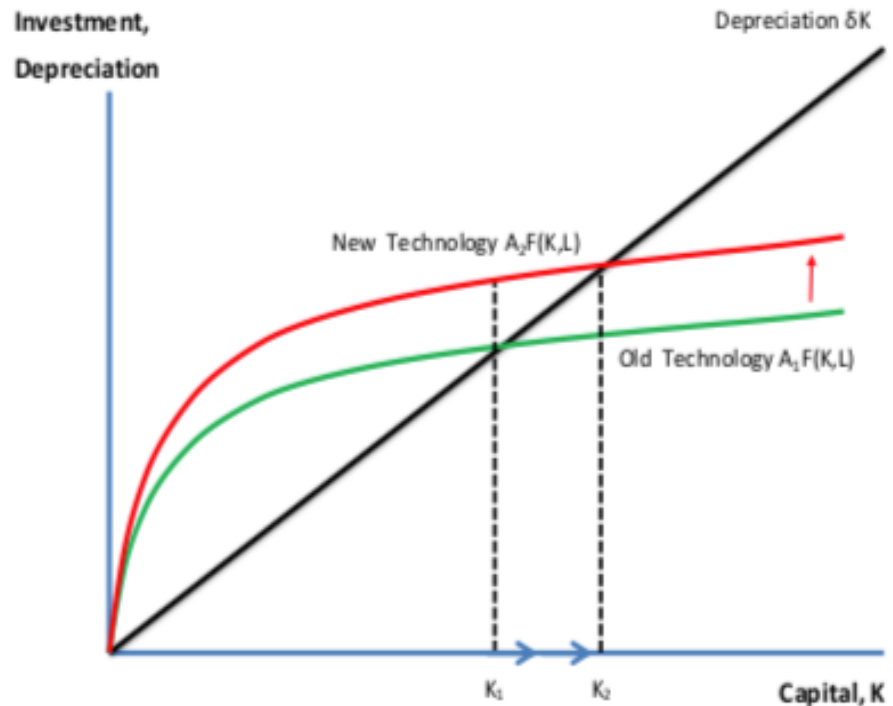
L = Labor

A = Multifactor Productivity

Long-run economic growth by looking at

Capital accumulation,
Labor growth, and
Increases in productivity

largely driven by technological progress.



The Role of Education

Labor to Human Capital

Mankiw, Romer, and Weil created a human capital augmented growth model.

$$Y(t) = [K(t)]^{\alpha} [H(t)]^{\beta} [A(t)L(t)]^{1-\alpha-\beta}$$

where

Y = Output

K = Capital Stock

L = Labor

A = Multifactor Productivity

H = Stock of Human Capital

In this model output (Y) and the marginal product of capital (K) are lower in poor countries because they have **less human capital** than rich countries.

Absolute convergence between countries or regions occurs depends on whether they have similar characteristics, such as:

How we can test this model empirically?

Salary = F(Years of **Schooling**)

National Income = F(Years of **Schooling**)

- **Education Policy**
- Institutional Arrangements
- Free Markets and Trade Policy

The Role of Education

Why should we care?

- There are 7 billion+ people alive today on the planet
- 1 billion control over 80% of resources
- Population in developing countries is growing much faster
- There are 1.8 billion young people aged 10-24 living today – largest in history
- Close to 90% of the world's young people live in developing countries
- More than 500 million young people aged 15-24 live on less than \$2 a day
- Approx 74 million young people are unemployed, and more than 600 million jobs are needed by 2030
- We should know and understand the causes and consequences of some of the world's major challenges – global hunger, poverty, injustice, inequality and climate change.

The Role of Education

Knowledge Economy

A) Education and Training

- Growing student populations
- Growing realization of skill-based education
- Efforts to modernize post-secondary education
- Involving stakeholders in curriculum development

B) Research and Development

- Stronger government commitment to R&D funding
- Integrating R&D capabilities via partnerships b/w corporate R&D units, universities, and research institutes
- Innovative funding instruments, specially VC facilities

C) Innovation

- Innovation policies depend on countries' ability to reform, invest and transform
- Economic impact of innovation
- High relative advantage and cost effective,
- Compatibility and low complexity

D) Entrepreneurship

- Creation of business-friendly political, legal and financial environment
- More elaborate support mechanisms to start-ups, SMEs.
- Improved entrepreneurship education, emphasis on values.

Conclusions

Final Remarks and the Way Forward

Education Policy should promote

- Future-oriented learning and teaching
- Outcome-based education
- Linkages between universities and industries
- Good research environment

Education Policy should equip students

- Planning and problem-solving skills
- Learning skills
- Communication skills
- Personal skills for self-management
- Social skills

Education Policy should focus on

- Character building
- Confidence and agency
- Self-discipline
- Emotional Intelligence

Education Policy should be designed by considering

- Religious and ethical values
- National priorities
- Policies by other countries
- Measureable outcomes

Thank You