

Foundation Studies

Business Environments

Part 3: The Sustainability Environment of Business

Unit 9

Ecology and Climate Change:
The Relationship Between Human Activities and The Natural World

Lecturer:

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Overview

- What is Sustainability?
- The Three Pillars of Sustainability
- Introduction to Ecology and Climate Change
- Environmental Degradation
- The Global Challenges of Climate Change
- Sustainable Development and the SDGs
- Managing Environmental Impacts
- Sustainable Consumption and Production

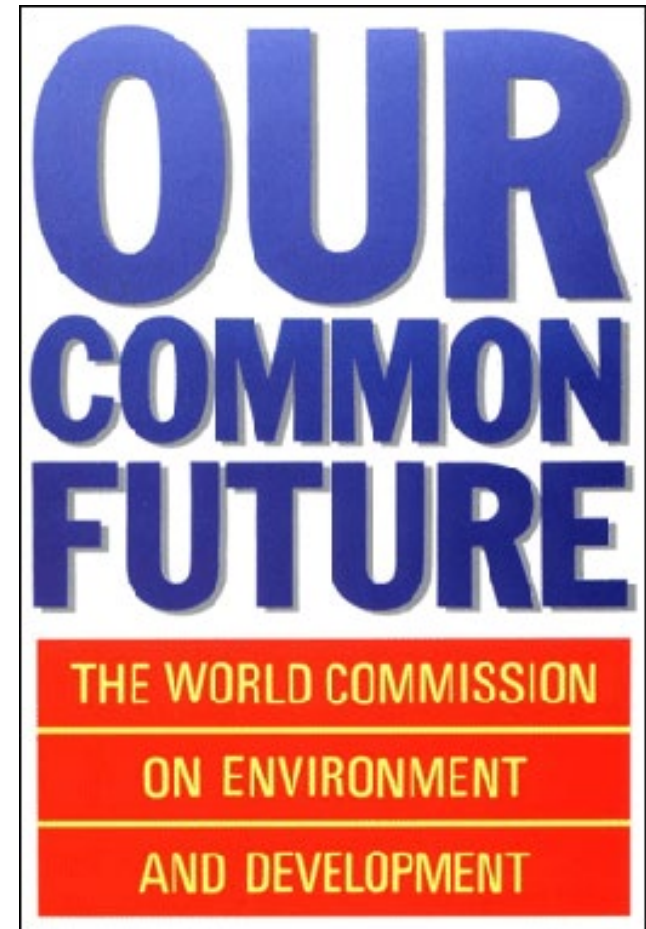


Photo: iStock

What is Sustainability?

In 1987, the United Nations Brundtland Commission defined sustainability as:

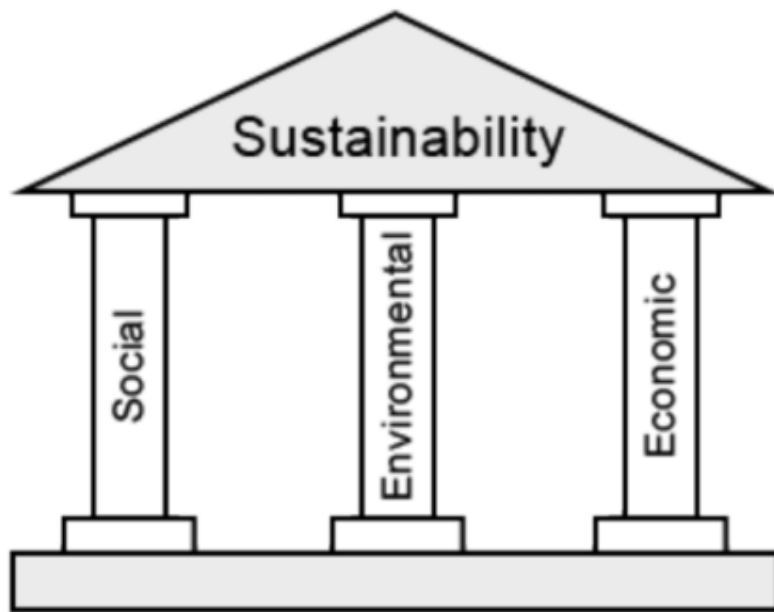
“meeting the needs of the present without compromising the ability of future generations to meet their own needs.”



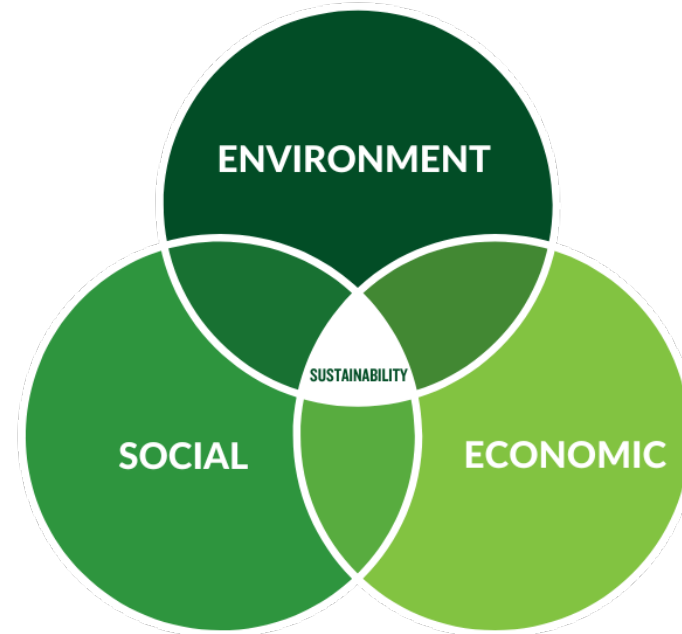
[Picture Source](#)

The Three Pillars of Sustainability

Together, these pillars represent a holistic approach to sustainability, balancing the needs of people, the planet, and economic prosperity.



[Picture Source](#)



[Picture Source](#)

The Environment Pillar of Sustainability

- The Environmental Pillar focuses on the need to protect natural ecosystems, reduce carbon footprints, and manage resources sustainably. It emphasises minimising environmental impact, reducing pollution, conserving biodiversity, and managing resources responsibly.
- It is about ensuring that the planet can sustain life and human activities for future generations.
- Key areas:
 - **Resource efficiency:** Sustainable use of energy, water, and materials.
 - **Pollution prevention:** Reducing emissions, waste, and toxic substances.
 - **Biodiversity conservation:** Protecting habitats and ecosystems.
 - **Climate action:** Minimising carbon footprints and supporting climate initiatives.



[Picture Source](#)

The Social Pillar of Sustainability

- The Social Pillar is centred on the well-being of people and communities. It emphasises the role of businesses in fostering social equity, human rights, and community development.
- Key areas:
 - **Human rights:** Ensuring that business operations respect and promote human rights, including fair wages, safe working conditions, and the elimination of discrimination and exploitation.
 - **Labour practices:** Fair and ethical labor practices, including ensuring the well-being and fair treatment of employees across the supply chain.
 - **Social equity & inclusion:** Ensuring diversity, equity, and inclusion in business operations.
 - **Community development:** Engaging in and supporting local communities through initiatives that improve education, healthcare, infrastructure, and overall quality of life.



[Picture Source](#)

The Economic Pillar of Sustainability

- The Economic Pillar focuses on creating systems and practices that are financially viable in the long term while supporting environmental and social well-being. It involves creating value in ways that can be maintained over the long term, benefiting both the business and the wider community.
- Key areas:
 - **Sustainable growth:** Balancing profitability with environmental and social impact.
 - **Innovation:** Investing in sustainable technologies and practices.
 - **Job creation:** Supporting economic stability through fair employment.
 - **Risk management:** Mitigating financial risks tied to sustainability challenges.
 - **Ethical practices:** Fair trade, transparency, and strong governance.



[Picture Source](#)

Introduction to Ecology and Climate Change



Ecology and Biodiversity: Interactions and Impact

- **Ecology:**
 - Focuses on interactions between living organisms and their habitats.
 - Habitats include urban centers, rural areas, forests, waterways, and seas.
- **Biodiversity:**
 - Variety, distribution, and number of living organisms.
 - Impacted by even slight environmental changes.

The Natural World – Resources and Fragility

- **Historical perspective:**
 - The natural world once seen as an endless source of resources.
 - Assumptions that land, sea, air, and forests were inexhaustible.
- **Modern understanding:**
 - Recognition of ecosystems' fragility and constant change.
 - Human activities as major contributors to environmental deterioration: global warming, natural resource depletion, and pollution.
 - Growing awareness of the environmental challenges impacting human well-being and biodiversity.



Rainforest jungle in Borneo, Malaysia, destroyed to make way for oil palm plantations.

Photo: Shutterstock/File

Global Environmental Challenges and the Role of Businesses

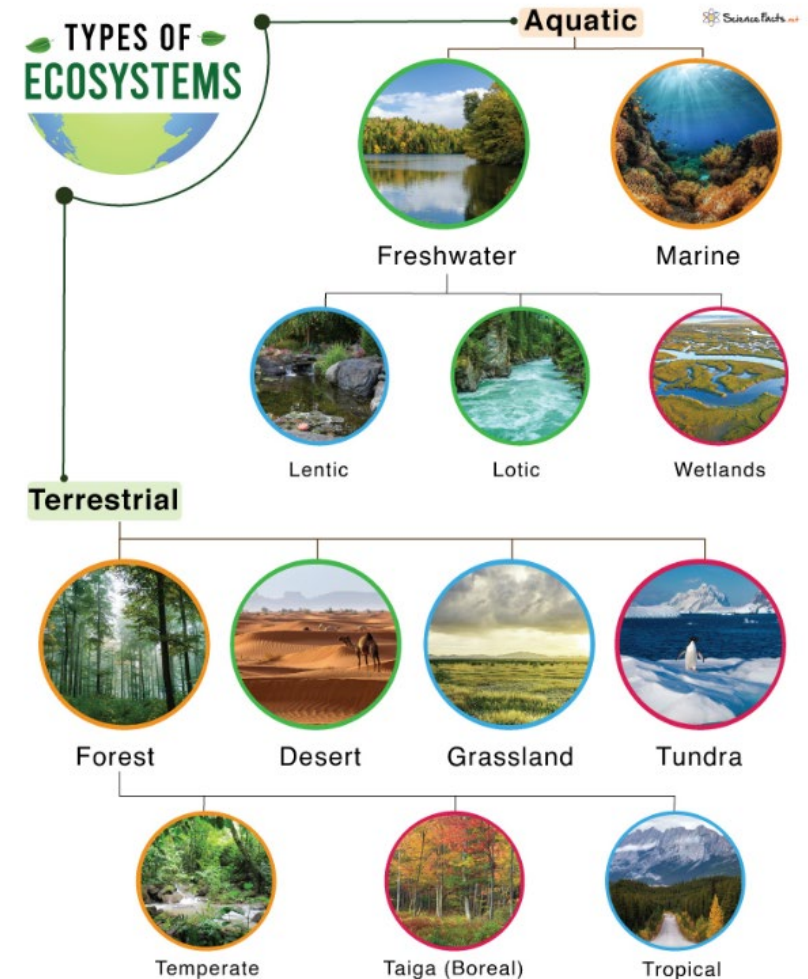
- Shifting perspectives:
 - Environmental issues now viewed in regional and global contexts.
 - Increased scrutiny on businesses' roles in environmental protection.
- Sustainable development:
 - Importance of integrating environmental protection into economic development.
 - Strategic significance for international managers in adapting to a low-carbon future.
 - Investors' growing pressure on companies to account for climate risks.

Environmental Degradation



Environmental Degradation

- The deterioration of the environment through depletion of resources, destruction of ecosystems, and extinction of wildlife.
- Specifically caused by human activity, unlike natural climate and weather changes.



[Picture Source](#)

The Industrial Revolution's Environmental Impact

Industrial revolution:

- 17th-18th century agriculture in Europe and North America.
- 18th century: Change in economic and social activities, brought by the replacement of hand tools with machinery and mass production (scientific and technological advancements).
- This period saw the transformation of predominantly rural, agrarian (relating to rural land and agriculture) societies in Europe and North America into industrialised, urban centers.
- Handcrafted goods began to be mass-produced in factories due to innovations in machinery and techniques, particularly in the textile and iron industries.
- Expansion of cultivated land, technological innovations, and capitalist market relationships.

Environmental impact:

- Deforestation and habitat destruction led to a decline in wildlife.
- Increased environmental degradation with factory production and synthetic chemicals.
- Urbanisation led to air pollution, poor access to clean water, and sanitation issues.



Textile mills billowing smoke into the atmosphere in Lowell, Massachusetts, 1910, via National Park Service

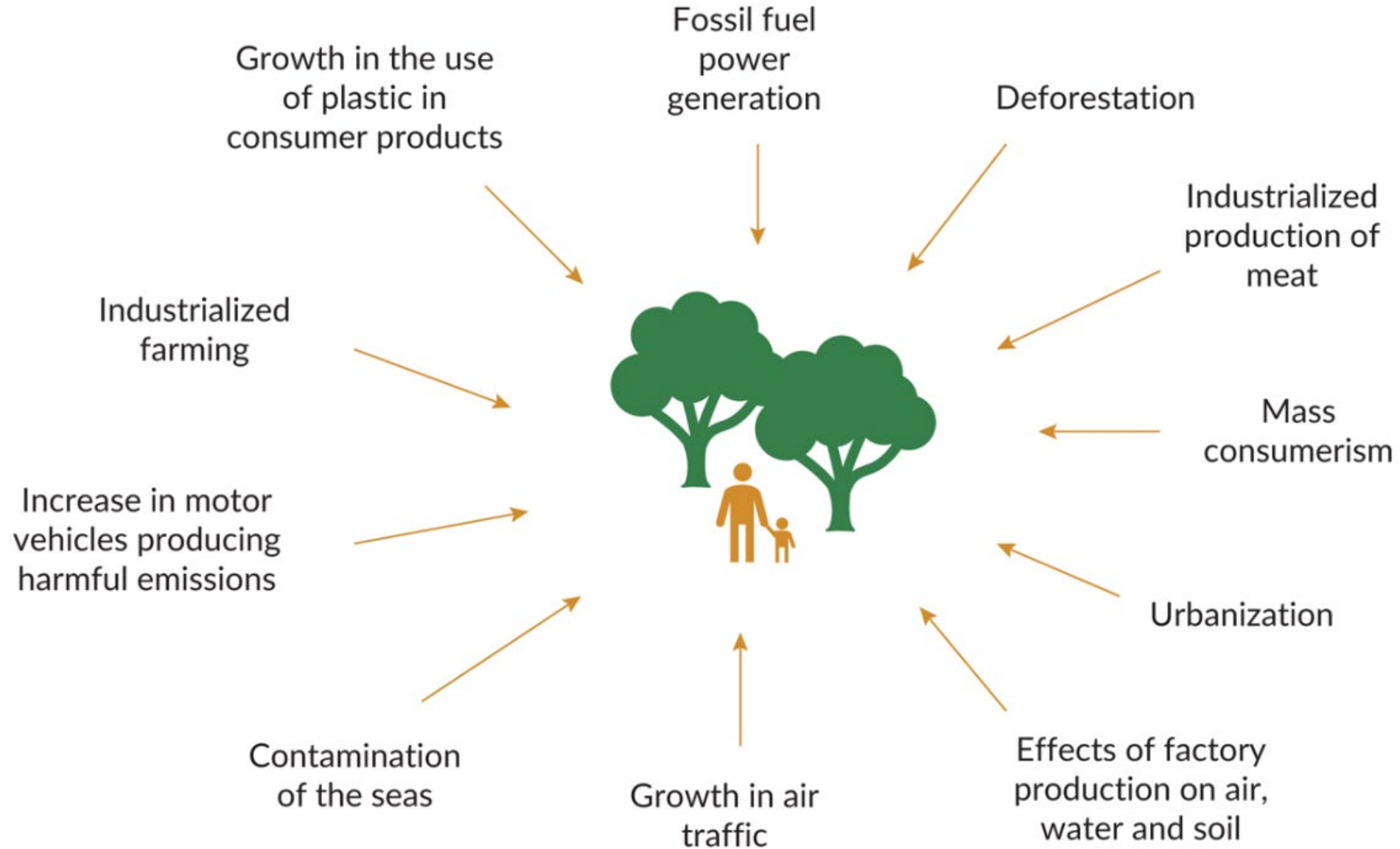
Deforestation: Causes and Consequences

- Deforestation:
 - Driven by the growing demand for food and large-scale commercial agriculture.
 - Main causes: cattle ranching, soya bean production, and palm oil plantations.
- Impact on biodiversity:
 - Forests are habitats for most of the world's biodiversity.
 - Leads to soil erosion, loss of water retention, and rising carbon emissions.
 - Unique species face extinction due to disrupted ecosystems.



[Picture Source](#)

Global causes of environmental degradation



Source: Morrison, J. (2023). *The Global Business Environment*. 6th ed. Bloomsbury Publishing, p 257.

The Concept of 'Global Commons'

- 'Global Commons':
 - Resource domains outside any country's jurisdiction: high seas, atmosphere, Antarctica, outer space. (UNEP, 2015)
 - Seen as the common heritage of all humanity.
- Environmental degradation:
 - Pollution and other human activities degrading these areas (e.g., pollution in Antarctica).
 - Need for international cooperation to address degradation.
- Interconnected environmental challenges:
 - Air pollution and waste from local sources can have global impacts (e.g., ozone depletion).
 - Governments must balance economic development with environmental protection.



Source: iStock

The Global Challenges of Climate Change

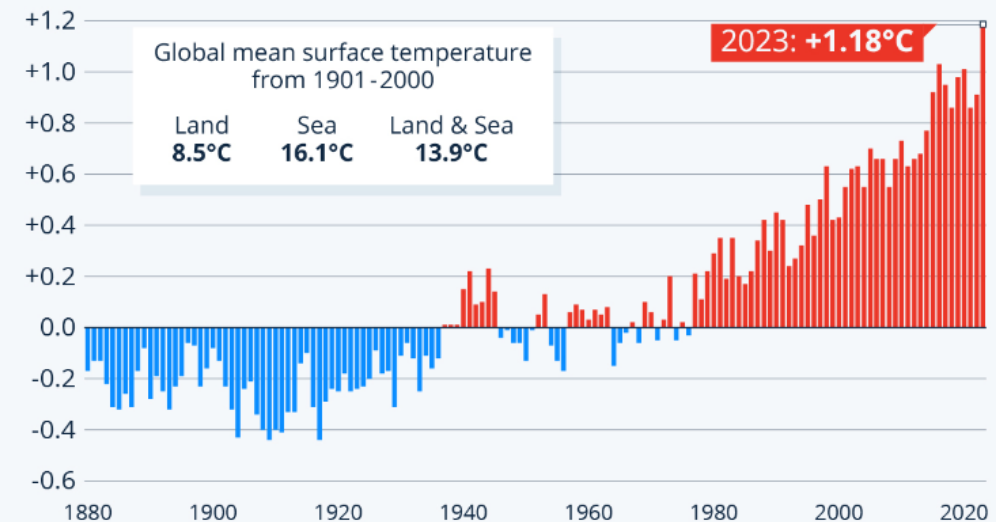


Climate Change

- What is climate change?
 - Any change in the climate over time, caused by natural factors or human activities.
 - Human activities as a significant driver of climate change.
- Global warming:
 - Current trend of increasing global temperatures.
 - Mainly caused by the build-up of trapped greenhouse gases (GHGs) in the atmosphere.
- Key GHG:
 - Carbon Dioxide (CO₂): Primary contributor to global warming from burning fossil fuels.
 - Emissions quadrupled in the latter half of the 20th century (rapid economic growth).

2023 Was the Warmest Year on Record – by a Record Margin

Global land and ocean surface temperature anomalies (in degrees Celsius compared to the 20th century average)



Source: NOAA

[Source: Statista](#)

Sources of Greenhouse Gas Emissions

- Main contributors:
 - Energy sector: Responsible for over half of global emissions, mainly from coal-fired power stations.
 - Transport sector: Significant contributor to rising emissions due to fuel consumption (aviation, shipping, road transport and private cars).
- Emission trends:
 - Record high of 37.1 Gt (gigatonnes or one billion tonnes) of CO₂ equivalent in 2017.
 - Declined due to changes in power generation in advanced economies. These countries' investment in renewable sources of energy, mainly wind and solar, have helped to reduce carbon emissions.



[Picture Source](#)

Acid Rain

- What is acid rain?
 - A byproduct of burning fossil fuels, particularly coal.
 - Contains high levels of nitric and sulphuric acids.
 - Forms as rain, fog, snow, or as dry acidic gases and particles.
- Environmental impact:
 - Forests: Trees gradually wither and die.
 - Buildings: Decay and structural damage.
 - Aquatic ecosystems: Severe harm to rivers, lakes, and marine life.
- Global response:
 - International cooperation in Europe and North America has reduced acid rain emissions.
 - However, industrialisation in developing countries has spread these issues globally.



[Picture Source](#)

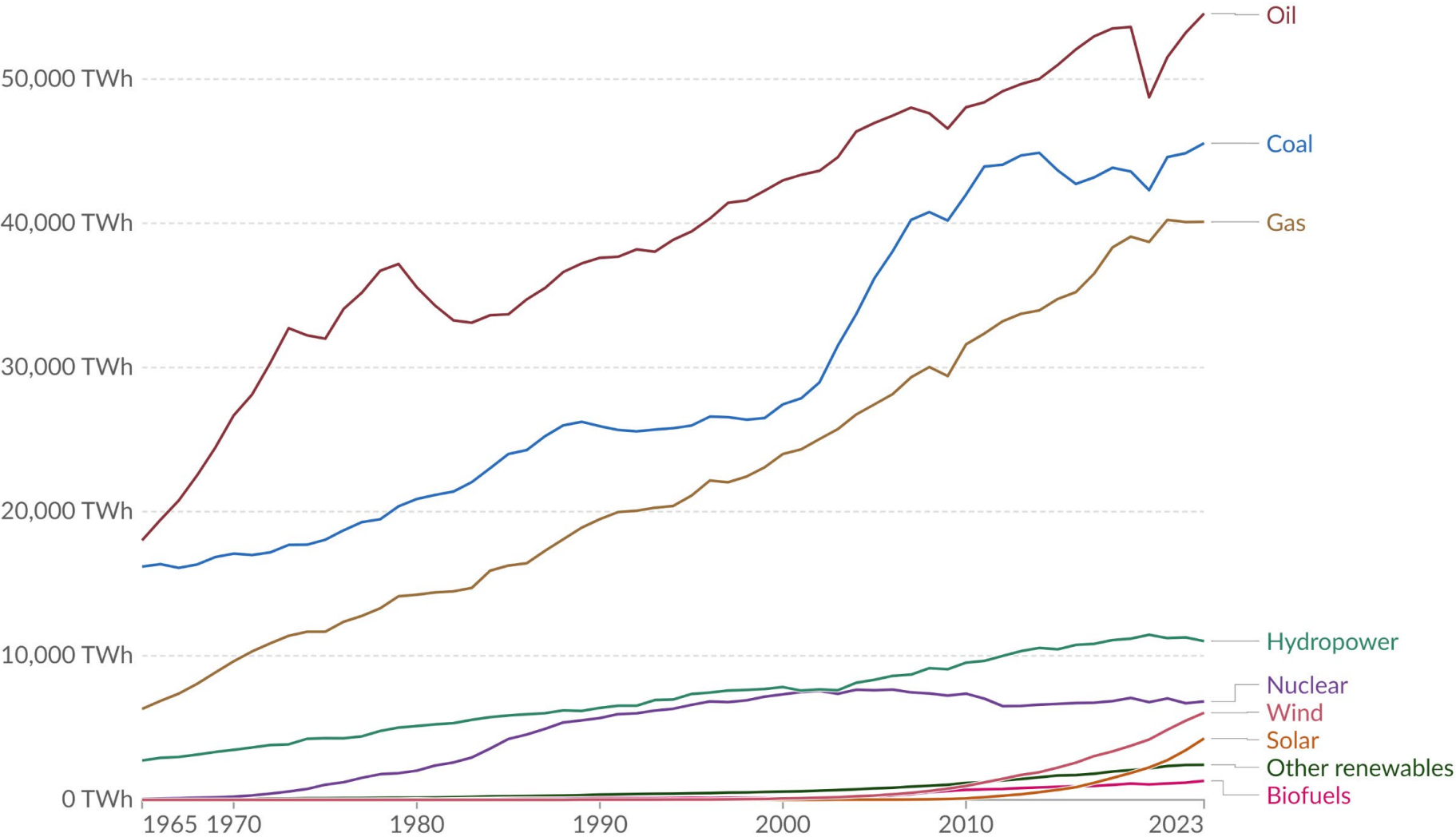
Energy Sources

- **Fossil fuels dominate:**
 - Main Sources: Oil, coal, and gas make up >80% of the global energy mix.
 - Pollutants from fossil fuels cross national borders, making pollution a global issue.
- **Transition to renewables:**
 - Fossil fuels' dominance must decrease to meet the 1.5°C global warming target.
 - Investments in renewables (e.g., wind, solar) are crucial for reducing reliance on fossil fuels.



Primary energy consumption by source, World

Primary energy¹ is measured in terawatt-hours², using the substitution method³.



Data source: Energy Institute - Statistical Review of World Energy (2024)

OurWorldInData.org/energy | CC BY

[Our World in Data](https://OurWorldInData.org/energy)

Sustainable Development and the SDGs

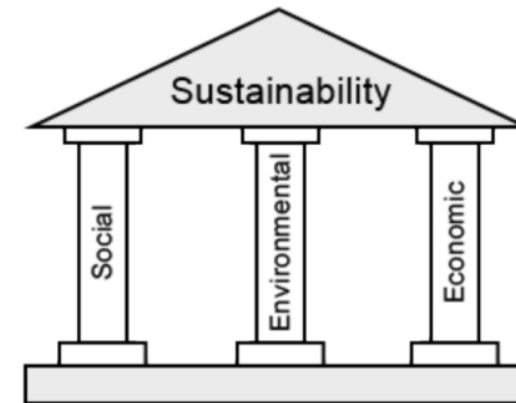


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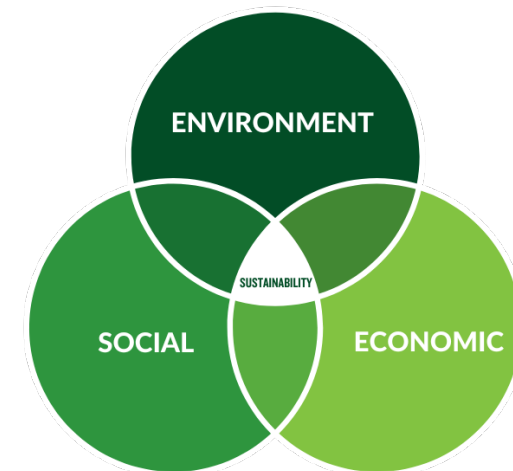
Concept of Sustainable Development

Our Common Future (Brundtland Report) (1987):

- Produced by the World Commission on Environment and Development.
- Introduced Sustainable Development: Development that “meets the needs of present generations without compromising the ability of future generations to meet their own needs” (UN, 1987).
- Emphasised the interdependence of economic growth, environmental stewardship, and social inclusion.



[Picture Source](#)



[Picture Source](#)

The UN Sustainable Development Goals (SDGs)

The UN's 2030 Agenda:

- Introduction to the 17 SDGs with 169 targets.
- The SDGs form the framework for improving the lives of populations around the world and mitigating the hazardous man-made effects of climate change.
- SDGs 7, 13, 14, and 15 as directly addressing climate change and environmental issues.



[Picture Source](#)

SUSTAINABLE DEVELOPMENT GOALS



[Picture Source](#)

Managing Environmental Impacts



Environmental Impacts of Business Operations

- Components of environmental impact: Land, water, and air
- Local pollution often managed through community interaction.
- Global issues like climate change and biodiversity loss seem complex and distant.



[Picture Source](#)

Sustainable Development in Business Strategy

- Sustainable Development for business:
 - Business strategies should meet current needs while protecting future resources.
- Impact on Sustainable Development:
 - Businesses contributing to environmental degradation hinder broader sustainable goals.
 - Example: Eroding a vital resource like a river can impact livelihoods and future generations.
- Stakeholder duty: Balance between meeting enterprise needs and preserving human/environmental resources.

Aspects of environmental management



Source: Morrison, J. (2023). *The Global Business Environment*. 6th ed. Bloomsbury Publishing, p 270.

Broader View of Environmental Footprint

- Holistic approach:
 - Evaluate environmental impact across all operations phases.
 - Example: Shifting to recyclable products in response to consumer demand.
- Merging economic efficiency with environmental protection:
 - Protecting the environment can enhance business value, not just constrain it.
- Sustainability Reporting:
 - Many businesses now regularly publish reports on their environmental and social impact.

Environmental Management in Practice

- Central role in high-impact industries:
 - Industries like chemicals, mining, and steel are inherently more pollutant.
 - Importance of Environmental Management: Research and awareness push businesses to consider their emissions and climate impact.
- Triple Bottom Line Reporting:
 - Financial, social, and environmental aspects
 - Environmental Reporting: Becoming a key aspect alongside financial and social reporting.
 - Voluntary reporting: Increasingly viewed as good governance by stakeholders.
- Corporate leadership: Companies can lead in setting emissions reduction targets, contributing to global progress.

Sustainable Consumption and Production



The Urgency of Sustainable Consumption

- Unsustainable resource use:
 - The planet's resources are being consumed 1.7 times faster than they can regenerate
- Plastic waste crisis:
 - Single-use plastics dominate ocean waste, with takeaway packaging being a significant contributor.
 - Common pollutants: Plastic bottles, bags, food containers, cutlery, and lids.
 - Researchers emphasise the need for government action and industry cooperation to reduce plastic pollution.



Photo: iStock

Sustainable Consumption and Production

- Beyond recycling:
 - Green consumerism involves more than just recycling and buying eco-friendly products.
 - Holistic lifestyle choices: Includes using sustainable transport, supporting sustainable agriculture, and investing in socially responsible funds.
- Lifecycle perspective:
 - Sustainable consumption considers the entire lifecycle of products and services, from production to disposal.
 - Goal: Minimise natural resource use, toxic materials, and waste emissions.

Changing Consumer Behaviour for a Sustainable Future

- Government leadership:
 - Governments need to introduce regulations to reduce single-use plastics and promote sustainable alternatives.
 - Industry Cooperation: Manufacturers must innovate and comply with new standards to reduce environmental impact.
- Consumer responsibility:
 - Impact of Lifestyles: Household consumption patterns significantly contribute to Greenhouse gases emissions.
 - Behavioural Change: Shifting towards sustainable consumption is crucial for mitigating climate change.



[Source](#)

End of Lecture

Next week:

The Sustainability Environment of Business:

Ethics and Social Responsibility – The Broader Role of Business in Society



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