UNSW College

UNSW College Foundation Studies

Business Environments

Ecology and Climate Change:

The Relationship Between Human Activities and The Natural World

Part 3: The Sustainability Environment of Business

Unit 9: Week 11 Tutorial

Learning Objectives

At the end of this tutorial, you should be able to:

- Understand and explain the concept of sustainability as defined by the UN Brundtland Commission.
- Identify key areas of the Environmental Pillar and their role in promoting sustainability.
- Describe how ecological changes affect biodiversity.
- Evaluate how human activities impact the environment and contribute to climate change.
- Investigate how businesses implement sustainability and relate their practices to Sustainable Development Goals (SDGs).
- Develop critical thinking and collaboration skills through group work and presentations.

Before this tutorial, you should have:

- Attended Unit 9 lecture
- Read the assigned *Readings*
- Completed the *Tutorial Questions*
- Read the *In-Class Collaboration and Presentations* questions

During this tutorial, you will:

- Demonstrate an understanding of the topic in the unit
- Participate in tutorial activities by:
    - Contributing to group discussions
    - Asking questions
    - Listening actively
    - Working collaboratively with other students
- Complete the *In-Class Collaboration and Presentations* activity

After this tutorial, you should:

- Consider attending one of the scheduled consultations and attempt to resolve any questions that you have as soon as possible.

Readings

The Brundtland Report

In 1983, the United Nations established the World Commission on Environment and Development (WCED) under the leadership of Gro Harlem Brundtland to address growing concerns about the deteriorating environment and the impact of this deterioration on economic and social development.

The Brundtland Report, formally titled *Our Common Future* (WCED, 1987), was subsequently published by the WCED. The report recognised that environmental problems are global and that sustainable development policies are in the interest of all nations. It called for economic development that does not deplete natural resources or damage the environment, while also emphasising the need to ensure global equity by redistributing resources to poorer nations. This notion of equity alongside growth became foundational to the concept of the *Triple Bottom Line*, which suggests that environmental protection, economic growth, and social equity can be achieved simultaneously.

A key contribution of *Our Common Future* was the recognition that many global crises, from poverty to environmental degradation, are interconnected and part of a larger, systemic issue. It emphasised the need for all sectors of society to engage in consultations and decision-making related to sustainable development.

Definition of Sustainable Development

The Brundtland Commission is credited with one of the most enduring definitions of sustainable development: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This definition has since become widely accepted as the foundation for global sustainability initiatives.

The Three Pillars of Sustainability

Sustainable development, as outlined in the Brundtland Report, rests on three fundamental interconnected pillars: environmental sustainability, economic sustainability, and social sustainability. These pillars, which form the *Triple Bottom Line*, are intended to be treated equally to achieve true sustainability.

- **Environmental sustainability** focuses on conserving the environment and enhancing natural resources, ensuring that our technological and developmental practices do not lead to environmental degradation.
- **Economic sustainability** involves ensuring that economic growth can be sustained over time without exhausting resources. The report highlighted the need for developing nations to experience growth on par with developed nations while maintaining sustainable practices.
- **Social sustainability** emphasises equity and fairness, ensuring that basic human needs are met and that all members of society have access to resources. Social equity is seen as essential for securing global fairness and achieving long-term sustainability.

These three pillars are integral to what is now widely referred to as the Triple Bottom Line, a framework used to measure the sustainability impact of corporate and institutional activities.

While the Brundtland Report made it clear that environmental, social, and economic factors must be considered equally to achieve true sustainability, this balance is rarely achieved in practice. Individuals, corporations, and institutions often prioritise one pillar over the others, leading to an imbalance. This skewed focus undermines the long-term goals of sustainable development, as favouring economic growth at the expense of environmental protection, or vice versa, can create deeper inequalities and environmental crises. This imbalance continues to be a major challenge in implementing sustainable development strategies worldwide.

Introduction to Ecology and Climate Change

The natural world has long been treated as an abundant source of resources to use freely. People once believed that the land, sea, air, forests, and the life they support would always be available for our use. However, we now understand that the natural world is not an endless supply but a fragile web of ecosystems, constantly changing—often for the worse, due to human activity. As our understanding of the environment has grown, the damage caused by human actions has become more evident. Environmental challenges, such as global warming, resource depletion, and pollution, are increasingly affecting societies, governments, and businesses. These processes not only threaten human wellbeing but also harm plants and animals, both on land and in the oceans.

It is possible to slow down and mitigate these harmful processes, and research plays a key role in finding solutions. While environmental issues were once seen as local concerns, they are now recognised for their broader regional and global implications. Similarly, where the environment was once seen primarily as the responsibility of governments, the role of businesses—whether positive or negative—is receiving growing attention.

Much of the environmental damage, both past and present, is linked to economic development, including industrialisation, changing farming practices, and the depletion of natural resources. Protecting the environment is essential for sustainable development, which takes a long-term view of progress and its impact. Sustainable development should be a key consideration in the strategic thinking of international managers. Investors are becoming increasingly proactive in pressuring boards to address climate risks and adapt their businesses to a low-carbon future.

Environmental Degradation

Ecology examines the relationships between living organisms and their environments. These organisms range from plants and animals to humans, inhabiting a variety of settings including urban centres, rural areas, forests, waterways, and the sea. Any change in these habitats can impact the living creatures they support. Even slight environmental shifts affect biodiversity, the variety, distribution, and number of species. While some environmental changes occur naturally, such as through climate or weather variations, environmental degradation refers specifically to changes driven primarily by human activity.

The capacity for environmental degradation expanded significantly with the Industrial Revolution, both in intensity and geographical reach. Factories, powered by coal and other energy sources, were joined by industries producing synthetic chemicals, contributing to a mix of old and new pollutants. As urban areas grew around these industries, environmental issues spread, leading to health threats from air pollution and inadequate access to clean water and sanitation.

While industrial development brought employment and income, it also led to environmental degradation, including resource depletion and pollution. Industrialisation drove processes that harmed ecosystems, as urbanisation—with its infrastructure, housing, and transportation—destroyed natural habitats. Additionally, growing prosperity, industrial jobs, and urban lifestyles increased demand for modern conveniences and processed foods, which in turn boosted the demand for energy and transportation.

Rising demand for food has also contributed to deforestation. Forests are cleared for fuel or converted into land for other purposes, a trend that has accelerated alongside global population growth. The main driver of deforestation is large-scale commercial agriculture, such as cattle ranching, soya bean production, and palm oil plantations.

Forests are home to most of the world's biodiversity. Deforestation and forest degradation pose severe threats to this biodiversity, as many species are unique to specific areas and can go extinct when their ecosystems are disrupted. Deforestation also leads to soil erosion, reduces the land's ability to retain water, and increases carbon emissions. Forests act as large carbon reservoirs, and when trees are cut down, stored carbon is released into the atmosphere.

The term "global commons" refers to resource domains that lie outside any single country's jurisdiction, such as the high seas, the atmosphere, Antarctica, and outer space (UNEP, 2015). These areas are considered the shared heritage of all humanity. Human activities like pollution are now degrading even remote areas like Antarctica, making it clear that international cooperation is essential to address the degradation of global commons. The interconnections between local, regional, and global phenomena are becoming increasingly evident. For example, pollution from a single factory can travel vast distances across national borders. On a larger scale, we now know that air pollution from industrial hubs contributes to the depletion of the ozone layer.

The Global Challenges of Climate Change

Climate change refers to any alteration in the climate over time, whether caused by natural processes or human activities. Climate experts largely agree that we are now experiencing a slow process of global warming—often called "global heating"—due to the accumulation of greenhouse gases (GHGs) in the earth's atmosphere, with carbon dioxide (CO_2) being a major culprit. CO_2 emissions surged fourfold during the second half of the 20th century, coinciding with rapid economic growth in Europe, the US, and Japan. The burning of fossil fuels, particularly in coal-fired power plants, accounts for over half of global GHG emissions, with the energy and transport sectors being the primary contributors.

In 2017, global GHG emissions reached a record high of 37.1 gigatonnes (Gt) of CO2 equivalent but fell to 33 Gt by 2019. This decline is largely due to shifts in power generation within advanced economies, where investments in renewable energy sources, such as wind and solar, have contributed to lowering carbon emissions. Despite these efforts, the burning of fossil fuels, especially coal, remains the dominant source of carbon emissions, responsible for about 40% of global emissions.

Another environmental issue linked to fossil fuel use is the gradual yet destructive impact of acid rain. Acid rain refers to precipitation containing high levels of nitric and sulphuric acids, which can take the form of rain, fog, snow, or dry particles. This pollution affects soil, plants, animals, buildings, and aquatic ecosystems. The primary components of acid rain—sulphur dioxide and nitrogen oxides—stem mainly from the burning of coal for electricity generation. Acid rain causes trees to wither, buildings to decay, and aquatic life to perish, with water-based ecosystems being particularly vulnerable.

UN Sustainable Development Goals

In 2000, the UN Millennium Summit brought together world leaders to introduce eight Millennium Development Goals (MDGs) aimed at improving global wellbeing over the next 15 years. These goals focused on poverty and hunger, education, child mortality, maternal health, disease, the environment, and global partnerships. Within these areas, specific targets were set, many of which were ambitious. While significant progress was made during this period, most of the targets were not fully achieved.

In 2015, the UN launched the 2030 Agenda for Sustainable Development, featuring 17 Sustainable Development Goals (SDGs) to guide global progress for the next 15 years. These SDGs are more comprehensive than the MDGs, with 169 targets addressing a wider range of issues. Alongside goals focused on human wellbeing, the SDGs also address institutional and governance challenges.

(Source)

The 17 Sustainable Development Goals

The first six SDGs focus on eliminating extreme poverty, hunger, and improving health and education worldwide. SDGs 7, 13, 14, and 15 directly target climate change and environmental issues.

Managing Environmental Impacts

Land, water, and air—the core elements of the physical environment—have been significantly affected by industrial activities tied to economic development. Managers are often used to addressing local pollution issues from their operations, typically in collaboration with local community authorities. However, larger-scale challenges such as climate change and biodiversity loss, though real, can feel distant, complex, and less responsive to conventional problem-solving approaches. Scientific evidence on these issues is not always conclusive, and regulatory frameworks vary in their monitoring and enforcement across regions.

Businesses are increasingly aware of the need to adopt cleaner technologies, driven both by growing social and ethical pressures and by international regulations gradually being incorporated into national laws. But how does a concept like sustainable development translate into practical business strategy? The

International Institute for Sustainable Development (IISD, 1992) provides some guidance with this statement:

> "For the business enterprise, sustainable development means adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future."

While still general, this statement underscores two key responsibilities: duty to stakeholders and duty to both human and environmental resources. When a business contributes to environmental degradation, it impedes sustainable development in a broader sense. For example, depleting a community resource such as a river can harm livelihoods and affect future generations.

Companies are encouraged to take a comprehensive view of their "environmental footprint," considering all stages of their operations—from production processes to the nature of their products—to assess where they can reduce environmental harm. Consumers have also played a role in driving change, creating demand for eco-friendly options such as recyclable products. Once seen as a trade-off, environmental protection and economic efficiency are increasingly viewed as complementary. Rather than being a constraint, environmental protection should be at the core of sustainable business strategies, seen as adding value. Many businesses now integrate sustainability into their reporting, highlighting their environmental and social responsibilities.

Assessing environmental impact and developing strategies to manage it have become integral to company operations, especially in industries that are naturally more pollutant-heavy, such as chemicals, mining, pulp and paper, iron and steel, and refineries.

Growing awareness of the harmful effects of climate change has prompted businesses to consider the environmental consequences of their activities, particularly their emissions levels. Companies, especially in high-emission industries, have the opportunity to lead efforts in reducing the impact of global warming. Their voluntary commitment to emissions reduction targets will significantly influence global progress toward national environmental goals.

Environmental reporting, which details how a company's operations affect the environment, has become an important aspect of "triple bottom line" reporting. This form of reporting includes not only financial performance but also social and environmental impacts. While reporting on social and environmental factors remains voluntary, these reports are increasingly seen by shareholders and stakeholders as a sign of good governance and corporate responsibility.

Sustainable Consumption and Production

When we think about consumers and environmental issues, we often focus on recycling packaging and purchasing eco-friendly products. However, green consumerism involves a more holistic approach, considering the entire lifecycle of consumption and production, along with a wide range of lifestyle choices. Beyond recycling and buying green brands, it includes using less polluting forms of transport, choosing food from sustainable agriculture, and investing in socially responsible funds.

We are depleting the planet's resources at an unsustainable pace, using them 1.7 times faster than they can regenerate (Webber, 2021). Single-use plastic is the largest contributor to ocean waste, with plastic from takeaway and delivery food and drink now accounting for more than half of all human-made waste (Carrington, 2021). Researchers were surprised to discover that takeaway items are the primary source of plastic pollution in the world's oceans. The most common items found include plastic bottles, single-use bags, food containers, plastic cutlery, food wrappers, and lids.

Addressing this issue requires changes within the industry and action from governments. Banning these disposable items would help reduce the mountains of litter in the oceans. Governments must introduce appropriate regulations, while manufacturers across the supply chain need to collaborate in developing sustainable alternatives.

The researchers concluded that governments must take the lead on environmental measures, even if some of those measures might be unpopular with consumers. Our lifestyles and household consumption patterns are contributing to the rise in greenhouse gases. Shifting to more sustainable consumption habits is crucial for mitigating the effects of climate change.

References

Carrington, D., 2021. 'Takeaway food and drink litter dominates ocean plastic, study shows', *The Guardian*, 10 June.

IISD (International Institute for Sustainable Development), 1992. *Business Strategies for Sustainable Development: Leadership and Accountability for the 90s*.

Morrison, J., 2023. *The Global Business Environment*. 6th ed. Bloomsbury Publishing, Chapter 10.

UN (United Nations), 1987. *Report of the World Commission on Environment and Development: Our Common Future (the Brundtland Report)*.

UNEP (United Nations Environment Programme), 2015. *International Environment and the Global Commons*.

Webber, J., 2021. 'Humanity has used up all of earth's resources for the year, and it's only July', *Plant Based News*, 29 July.

Tutorial Questions

Students must complete the following questions before coming to class

Understanding Sustainability

1. What is the definition of sustainability according to the United Nations Brundtland Commission? Why is this definition significant for understanding sustainable development?

Exploring the Environmental Pillar

2. Identify and explain three key areas within the Environmental Pillar of Sustainability. How do these areas contribute to the overall goal of sustainability?

Ecology and Biodiversity

3. Explain the relationship between ecology and biodiversity. How do slight environmental changes impact biodiversity?

Impact of the Industrial Revolution

4. How did the Industrial Revolution contribute to environmental degradation? Discuss the specific impacts on air quality, water access, and wildlife.

Deforestation and Biodiversity

5. What are the main causes of deforestation, and how does it impact biodiversity? Provide examples of how deforestation leads to environmental challenges.

‘Global Commons’

6. Explain the concept of ‘global commons’. Discuss the significance of international cooperation in addressing environmental degradation in these areas.

Sustainable Consumption

7. Sustainable consumption and production are urgent because the planet's resources are being consumed faster than they can regenerate, leading to environmental degradation. Sustainable consumption means changing lifestyles. As consumers, we depend on a variety of industrialised products, from supermarket ready meals in packets to drinks in cans and takeaway food. Businesses are inclined to say that they continue to produce these products because these are what consumers want.

    a) Identify some of the everyday products you use that are not sustainable. Explain why they are not sustainable (environmentally or socially).

Product	Reason for unsustainability
Example: Plastic bags	Made from non-renewable resources, contribute to pollution and take hundreds of years to decompose

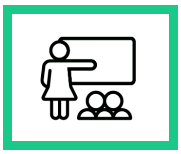
b) To what extent would you be able and willing to give up these everyday products?

Here are some options to consider:

- ***Strong Reluctance:*** Very hesitant to give up the product despite its unsustainability, possibly due to its importance or lack of alternatives.
- ***Moderate Reluctance:*** Somewhat hesitant, but open to giving it up if there are sustainable alternatives or significant environmental benefits.
- ***Moderate Willingness:*** Somewhat willing to give up the product, especially if it helps reduce environmental impact or if there are good sustainable alternatives.
- ***Strong Willingness:*** Very willing to give up the product without much hesitation, prioritising sustainability and environmental benefits.

c) How can you adjust your consumption habits to support a more sustainable future, and what challenges might you face in reducing your reliance on these everyday products?

Product	**Extent of Willingness to Give Up Product**	**Adjustments to Consumption Habits**	**Challenges Faced**
Example: Plastic bags	Moderate Willingness	Use reusable bags instead of plastic	Forgetting to bring reusable bags, convenience of plastic bags



In-Class Collaboration and Presentations

Students must read the following questions before coming to class.

Environment Pillar and Social Pillar of Sustainability

In this activity, you are required to research and investigate how real-world businesses address sustainability through their practices and initiatives, and present your answer to the class in small groups.

This exercise will enhance your understanding of sustainable business practices and the importance of aligning with the United Nations' Sustainable Development Goals (SDGs).

Instructions:

1. **Form small groups and allocate:**
    - Your tutor will divide the class into 4 groups of students.
        - Groups 1 and 2 focusing on the Environment Pillar
        - Groups 3 and 4 focusing on the Social Pillar
2. **Choose a real-world business:**
    - Each group chooses a real-world business (tutor to ensure there are no repeats).
    - Briefly describe the business and explain why you selected it
3. **Research and identify:**
    - Research and identify the business's sustainable practices/initiatives to advance sustainable development.
    - For each of the sustainable practice/initiative identified, explain its impact on the environment/society.
        - Groups 1 and 2 (Environment Pillar): Investigate practices/initiatives related to reducing carbon emissions, resource efficiency, pollution control, and biodiversity conservation.
        - Groups 3 and 4 (Social Pillar): Investigate practices/initiatives related to human rights, fair labour practices, human rights advocacy, and community engagement.
4. **Identify relevant Sustainable Development Goals (SDGs):**
        - For each of the sustainable practice/initiative, identify the relevant SDGs the company is contributing towards through its sustainability practices or initiatives.
5. **Prepare your presentation:**
    - Assign roles within your group (e.g., who will present which part).
    - Create a clear and concise presentation covering each part of the activity.
6. **Present to the class:**
    - Each group will have 5 minutes to present their findings.
    - Ensure that each member of the group participates in the presentation.
    - Be prepared to answer questions from your classmates and your tutor.

The 17 Sustainable Development Goals

GOAL 1. End poverty in all its forms everywhere
GOAL 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
GOAL 3. Ensure healthy lives and promote well-being for all at all ages
GOAL 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
GOAL 5. Achieve gender equality and empower all women and girls
GOAL 6. Ensure availability and sustainable management of water and sanitation for all
GOAL 7. Ensure access to affordable, reliable, sustainable and modern energy for all
GOAL 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
GOAL 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
GOAL 10. Reduce inequality within and among countries
GOAL 11. Make cities and human settlements inclusive, safe, resilient and sustainable
GOAL 12. Ensure sustainable consumption and production patterns
GOAL 13. Take urgent action to combat climate change and its impacts
GOAL 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
GOAL 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
GOAL 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
GOAL 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Refer to the example given at the end of this Tutorial Guide.

Group number	
Sustainability Pillar	
Chosen real-world business	
Briefly describe the business and explain why you selected it	

Sustainable Practices/Initiatives	**Impact**	**Relevant SDGs**

Sustainable Practices/Initiatives	Impact	Relevant SDGs

Example

Sustainability Pillar	Environment Pillar
Chosen real-world business	TINE
Briefly describe the business and explain why you selected it	TINE is the largest dairy product cooperative in Norway. In the Sustainable Brand Index, TINE was ranked by consumers as Norway's most sustainable company in 2019.

Sustainable Practices/Initiatives	**Impact**	**Relevant SDGs**
100% plant-based renewable material for milk cartons (packaging)	Reduces carbon footprint and promotes sustainable use of the earth's resources.	SDG 12 – Responsible Consumption and Production SDG 13 – Climate Action
Unbleached and lighter packaging	Lowers resource consumption and reduces waste.	SDG 12 – Responsible Consumption and Production
Removal of plastic caps in packaging	Reduces plastic consumption, making it easier for consumers to make environmentally friendly choices.	SDG 12 – Responsible Consumption and Production SDG 14 – Life Below Water (reducing plastic waste)
TINE vehicles running on biogas from cow manure	Reduces greenhouse gas emissions and promotes the use of renewable energy sources.	SDG 7 – Affordable and Clean Energy SDG 13 – Climate Action
Solar cells at dairy plants	Utilises renewable energy, reducing reliance on fossil fuels.	SDG 7 – Affordable and Clean Energy SDG 13 – Climate Action
LED lighting systems	Reduces energy consumption, lowering overall energy usage and carbon footprint.	SDG 7 – Affordable and Clean Energy SDG 13 – Climate Action
Energy recovery from production processes – reuses excess heat from underfloor heating, snow melting, and water heating	Reducing energy consumption and improving overall energy efficiency.	SDG 9 – Industry, Innovation, and Infrastructure SDG 12 – Responsible Consumption and Production
Closed-loop water and dry cooling system	Reduces the need for fresh water, ensuring sustainable water management.	SDG 6 – Clean Water and Sanitation SDG 12 – Responsible Consumption and Production
Sophisticated energy concept with heat pump system by reusing heat from cooling and compressed air systems	Reduces energy consumption, lowering the overall carbon footprint.	SDG 9 – Industry, Innovation, and Infrastructure SDG 13 – Climate Action
Biofuel filling stations and charging points for electric vehicles	Supports the transition to eco-friendly fuels, contributing to reduced greenhouse gas emissions.	SDG 7 – Affordable and Clean Energy SDG 13 – Climate Action
Shifting to more sustainable fuels for transportation - liquid biogas exploration for vehicles	Reduce greenhouse gas emissions.	SDG 9 – Industry, Innovation, and Infrastructure SDG 13 – Climate Action
New feed additives project to reduce emissions in milk production	Reduce emissions from cows, further lowering the carbon footprint of dairy production.	SDG 12 – Responsible Consumption and Production SDG 13 – Climate Action