DP IB Environmental Systems & Societies (ESS): HL

10.2 Market Failures & Solutions

Contents

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Market Failures

- In environmental economics, market failure occurs when the free market fails to allocate goods and services **efficiently**, leading to **negative impacts** on the **environment** and **society**
  - For example, a factory that produces goods may release pollutants into the air and water, causing environmental damage and health hazards for local people
    - This results in a net reduction in the welfare of society at **no cost to the factory**
  - Another example is the problem of electronic cigarette or vaping waste
    - Many vaping devices contain non-recyclable materials, leading to environmental pollution and contributing to the growing problem of electronic waste

Examples of Market Failures with Environmental Consequences

Market failure	**Goods and services allocated by free market**	**Negative impacts on environment and society**
Air Pollution	Burning of fossil fuels such as petrol for **vehicle use** and coal for **industrial processes**	Emissions of harmful pollutants (e.g. carbon dioxide and nitrogen oxides) contribute to air pollution, leading to health problems (e.g. respiratory diseases) and environmental degradation (e.g. acid rain, climate change)
Deforestation	Logging for timber used in **construction** and **furniture production**	Deforestation leads to habitat loss for wildlife, loss of biodiversity, disruption of ecosystems, and contributes to climate change by reducing carbon sequestration, impacting global climate patterns and increasing the risk of natural disasters
Overfishing	Fishing for marine species for **human consumption**	Overfishing depletes fish stocks, disrupts marine ecosystems, and can lead to the collapse of fisheries, impacting livelihoods and food security, particularly in coastal communities reliant on fishing

Why do market failures happen?

- In a perfectly competitive market, prices are determined by supply and demand, and resources are allocated **extremely efficiently**

- However, in reality, markets often fail to achieve this efficiency for various reasons
- Market failures often arise due to factors such as monopoly power (e.g. too much economic power in one company's hands) or unequal distribution of wealth and resources
    - These failures lead to inefficient resource allocation, where the market does not reflect the **true costs and benefits** of production or consumption activities, resulting in **negative outcomes** for society as a whole
- Understanding market failures is important for policymakers and economists to design and implement effective interventions to address environmental and social issues and promote sustainable development

Polluter-Pays Principle

- When the **market fails to prevent negative impacts** on the environment or society, the polluter-pays principle can be applied
    - This principle suggests that those **responsible for pollution** should **bear the costs** associated with stopping, managing, and cleaning up the pollution that they themselves have created
    - For example, if a factory releases harmful chemicals into a river, the factory owner would be responsible for the costs of cleaning up the contaminated water

Implementation of the principle

- Environmental economics offers various solutions to ensure the polluter pays for their pollution—these include:
    - **Quotas**: setting limits on the amount of pollution a polluter can emit (in a way, this acts as a limit on the profits that the polluter can make)
    - **Fines**: imposing penalties or fines on polluters who exceed pollution limits
    - **Taxes**: taxing pollution to discourage harmful activities and generate revenue for environmental protection efforts
    - **Tradable permits**: allowing polluters to buy and sell permits to emit pollution, creating a market-based approach to pollution control, e.g. carbon credits
    - **Carbon neutral certification**: certifying products or companies as carbon neutral when they offset their carbon emissions through activities such as reforestation or investment in renewable energy projects
- For example, the European Union's **Emissions Trading System** (ETS) imposes a cap on carbon emissions and allows companies to trade emission allowances
    - This acts as an incentive for reducing emissions whilst also ensuring that polluters bear the costs of their emissions

Government intervention

- Government intervention strategies and policies are often employed to prevent negative impacts on the environment and society by **holding polluters accountable**
    - For example, tobacco companies may be required to pay for the cleanup of discarded cigarettes to mitigate the environmental impact of littering
        - Under new environmental regulations in Spain, tobacco companies will be required to cover the costs associated with cleaning up discarded cigarette butts from streets and beaches
- Internationally, policies such as the **'high seas' treaty** aim to protect the oceans and hold polluters accountable for activities that harm marine ecosystems
    - The High Seas Treaty, formally known as the United Nations Convention on the Law of the Sea (UNCLOS), is an international agreement governing activities in the world's oceans **beyond national jurisdiction** (i.e. beyond a country's Exclusive Economic Zone (EEZ) of 200 nautical miles from the coastline)
    - It establishes legal frameworks for the conservation and sustainable use of marine resources, as well as the protection of the marine environment
    - One of its key principles is holding nations accountable for their activities that may cause **pollution** or harm to the marine environment on the high seas
    - This treaty is relevant to the **polluter-pays principle** because it means that countries engaging in activities that cause marine pollution are **responsible for mitigating and cleaning up the pollution they cause**
    - By enforcing regulations and mechanisms under the treaty, it ensures that those who **benefit from exploiting marine resources** also bear the **responsibility** and **costs** of addressing any **negative environmental impacts**
    - For example, BP was held responsible for the Deepwater Horizon oil spill in the Gulf of Mexico in 2010 and incurred significant costs for cleanup and compensation to affected communities

Greenwashing & Tragedy of the Commons

Greenwashing

- **Greenwashing**, sometimes referred to as '**green sheen**', refers to the **misleading practice** where companies use marketing techniques to portray themselves as **environmentally friendly** or **sustainable**
    - This can be deceptive or dishonest because they often do it without implementing any **meaningful changes or environmental improvements** to their practices
    - For example, companies may engage in greenwashing by investing in advertising campaigns or branding initiatives that create the perception of **environmental responsibility**
        - This can include using eco-friendly imagery, slogans, or labels on products without backing up these claims with genuine sustainability efforts
- Greenwashing misleads consumers and undermines genuine efforts towards sustainability
- It diverts attention and resources away from real environmental solutions and allows unsustainable business practices to continue

Examples of Greenwashing

Example	Explanation
Energy or oil companies	May advertise their commitment to renewable energy sources, but continue to invest heavily in fossil fuel extraction and lobby against environmental regulations
Fast-fashion brands	May boast about their eco-friendly clothing lines whilst overlooking their unsustainable manufacturing processes (e.g. by failing to disclose the use of harmful chemicals in their manufacturing process)
Automotive companies	May promote a "green" electric car model whilst overlooking the environmental impact of the battery manufacturing process or the lack of infrastructure for sustainable energy generation and consumption
Fast-food chains	May promotes their "eco-friendly" packaging made from recycled materials but fails to mention the environmental impact of its meat sourcing practices or the excessive packaging waste generated by its products

Tragedy of the Commons

- The tragedy of the commons is the term used to describe a situation where **resources that are shared by everyone are exploited or depleted due to the absence of individual responsibility**
  - When no one owns a resource, individuals may exploit it for their **own gain**, leading to its degradation or complete depletion, which ultimately has **negative consequences for everyone**
  - An example of the tragedy of the commons can be observed in international waters, where various fishing fleets compete for fish stocks **without regulation or cooperation**
    - As each fleet seeks to maximise its catch, fish populations decline, disrupting marine ecosystems and making fisheries increasingly unsustainable

Property rights and commons

- In situations where property rights are **not clearly defined** for common resources, such as communal grazing lands or shared water bodies, individuals may exploit these resources without regard for the **long-term consequences**
    - Without ownership or responsibility, the **'free rider' problem** arises, where individuals benefit from the resource without contributing to its maintenance or preservation

Alternative approaches

- **Ostrom's Shared Pastures in Switzerland:**
    - Elinor Ostrom, a renowned scholar in economics, highlighted the effectiveness of local communities in managing common resources through **collective agreements and rules**
        - She did this through her research and publications in the latter half of the 20th century and early 21st century, winning the Nobel Prize in Economic Sciences in 2009
    - One notable example is the management of shared pastures in Switzerland by rural communities
        - In these shared pastures, local communities have established collectively agreed-upon rules to govern grazing practices and ensure **sustainable use of the land**
        - Grazing rights are allocated based on traditional practices and **equal distribution** among community members
        - Additionally, regular monitoring and enforcement of rules are implemented to **prevent overgrazing** and maintain the health of the pasture ecosystem
        - This approach demonstrates how communities can effectively manage common resources through cooperation and collective action without the need for centralised government intervention