Sustainability

Chapter 3

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Learning Outcomes

In this chapter we will:

- outline the concepts of economic, social and environmental sustainability and explain their interconnections
- identify indicators of economic growth, social cohesion, inequality, and environmental sustainability; examine relationships between the indicators
- consider potential implications of sustainable development for individual behaviour, choice, habits and values; business decisions; government policy.

Sustainability – Important Definitions

Sustainable – a sustainable activity is one which can be upheld/continued. For example the term *sustainable economic growth* refers to growth that can be continued for the long-term.

Sustainable Development Goals (SDG's) roadmap for sustainable development set forward by the UN, covering areas like poverty, climate action and equality.

Resource depletion – reduction in the stock of available resources. For example, mining coal decreases the quantity of available coal.

Resource degradation – refers to how a resource becomes less productive over time, like the depreciation of machinery.

UN Sustainable Development Goals

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In your exam, you could be asked to list or explain one or more of the SDGs, so make sure you're familiar with a few of them. You could also be asked to pick a goal design some policies to achieve that goal. For example, for goal 5 – Gender Equality – could be reached by tackling the gender pay gap and improving global access to education for young women and girls.
Although these goals may appear straightforward or obvious, they are very tricky to impose. Here are some challenges facing the implementation of the SGG's.

- **International instability** is caused by poverty, natural disasters or authoritarians/dictators. Consequently, lack of education, pandemics. Divisive world leaders like Donald Trump or Kim Jong Un can divert attention away from SDG's.
- **Implementing the goals** can be a challenging task in and of itself. Governments must employ cost-benefit analysis to figure out if a particular policy will actually be effective in achieving SDG's.
- **National/international co-ordination on the goals** may become a problem if certain nation states refuse to co-operate with SDG roadmap. Hungarian laws, for example, have recently shown hostility towards migrants which goes against SDG 10 'Reduced Inequalities'.

Pillars of Sustainability

Economic Sustainability

Ability of an economic system to uphold a defined level of economic activity indefinitely.

- Economic growth
- Employment
- Efficiency and competitiveness
- International trade
- Stability

Social Sustainability

Ability of a social system to uphold a defined level of social harmony and wellbing indefinitely.

- Social welfare
- Equal opportunities
- Strong education system
- Human rights
- Equality & Justice

Environmental Sustainability

Ability of an ecosystem to maintain populations, uphold biobiversity and life indefinitely.

- Using renewable resources
- Waste
- Food
- Landscape
- Habitats

One way of modelling economic sustainability is using the *Rule of 72*. This refers to the number of years taken to double economic output, given the current rate of economic growth. It's given by the equation:

$$\text{Years to double output} = \frac{72}{\text{Economic Growth Rate}}$$

Interconnectivity of The Pillars

Environmental with economic

- **Energy efficiency:** Grants from SEAI (retrofitting, solar panels) reduce energy use, lowering household/business costs, boosting incomes/firm competitiveness.
- **Carbon credits:** Ireland participates in EU Emissions Trading Scheme. Sectors exceeding CO_2 quotas must purchase credits, influencing firm costs and investment.

Economic with social

- **Fair taxation system:** Progressive income tax and USC bands help redistribute income. Budget 2025 raised the standard rate band to €44,000, improving income for middle earners.
- **Workers' rights:** Min. wage rises (€13.50/h from Jan 2025) and statutory sick pay expansion improve job quality and reduce in-work poverty.

Environmental with social

- **Environmental legislation:** Climate Action and Low Carbon Development (Amendment) Act 2021 sets legally binding targets for net-zero emissions by 2050, shaping behaviour of households and communities.
- **Public climate action:** Initiatives like National Spring Clean, community recycling schemes and local biodiversity projects engage citizens directly, fostering social cohesion & environment stewardship.

Environmental Kuznets Curve (EKC)

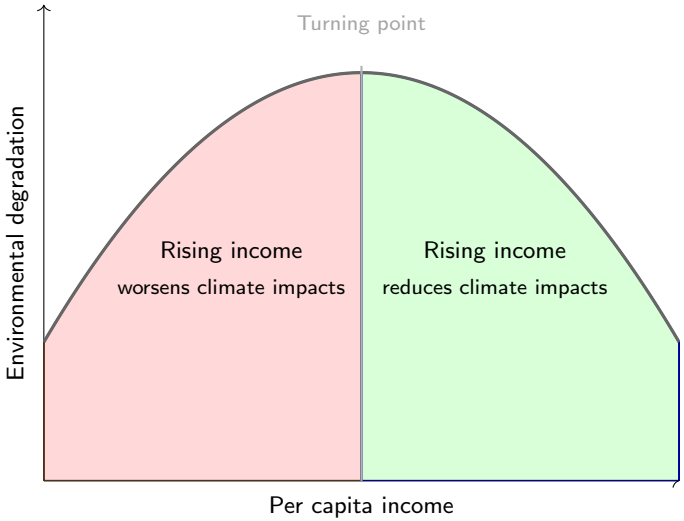
Definition: The EKC hypothesises an inverted-U relationship between environmental degradation and per capita income:

- **Stage 1 (Low income):** Economic growth initially leads to higher pollution as industrial activity, energy use, and resource extraction intensify.
- **Stage 2 (Turning point):** Beyond a certain income level, societies can afford cleaner technologies, environmental regulation, and shift towards services.
- **Stage 3 (High income):** Pollution levels fall despite continued growth due to technological improvements, stricter laws, and increased environmental awareness.

Irish Context:

- In the 1970s–1990s, rapid industrialisation and urbanisation led to rising CO_2 and waste per capita.
- Post-2000: EU environmental directives (e.g., Water Framework Directive, Renewable Energy targets) and domestic policy reduced certain pollutants, despite GDP growth.
- Current challenge: EKC pattern less clear for greenhouse gases — Ireland's agriculture-driven emissions remain high even at high incomes.

Environmental Kuznets Curve (EKC)



Income Inequality

IIncome Inequality

Inequality of income/wealth refers to how income/wealth is spread/distributed unevenly among the population.

Inequality can have some harmful social impacts:

- *Inequality threatens economic growth* – the poorest individuals in society may not have the necessary resources (education/healthcare/needs) to develop to their full potential.
- *Inequality undermines social fairness* – uneven spread of wealth can harm social cohesion/togetherness. Those living in poverty may feel like social outcasts if homelessness and deprivation are high.
- *Wealth inequality can cause inequality of opportunity* – while those with higher incomes can pass them on to future generations, others can become stuck in intergenerational poverty traps.

Measuring Income Inequality

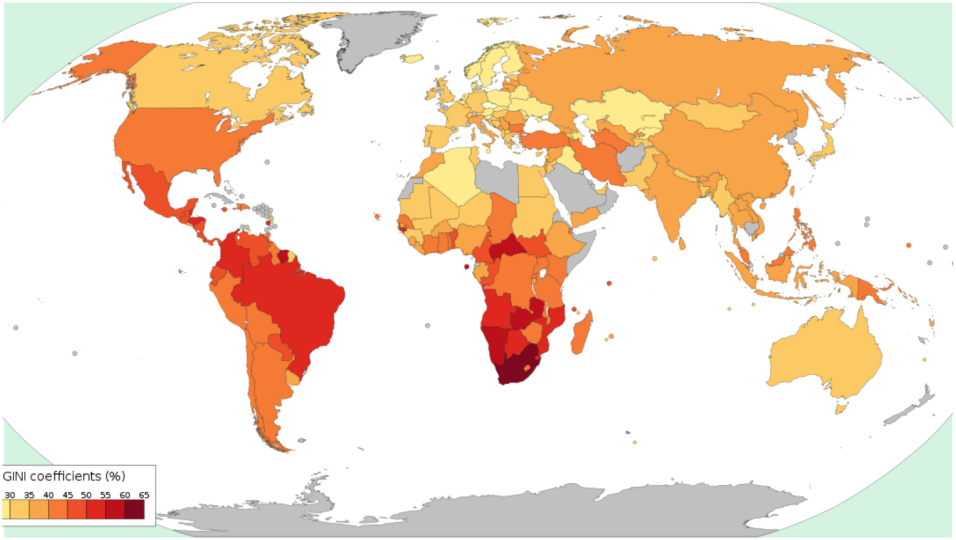
G80/G20 Share Ratio

Measures the annual income earned by top 20% of households compared to the annual income earned of held by the bottom 20% households.
For example a score of 5.0 means that the top 20% hold 5 times as much wealth as the bottom 20%.
Likewise a score of 1.0 indicates complete equality of income

Gini Coefficient

Measures level of income of a country on a scale of 0 to 100
Score of 0 indicates complete equality of income.
Score of 100 indicates that a single household earns all the income in the economy.

Gini Coefficient Map



Addressing Income Inequality

Governments, individuals and businesses can all take measures to reduce income inequality.

1. Progressive income taxation (high marginal rates) means that richer people pay higher proportion of income in tax.
2. A robust social welfare system should ensure a sufficient safety net for the poorest in society as well as the unemployed and disabled.
3. Invest in improved education and training for those on lower incomes.
4. Min wage legislation ensures that all individuals can earn enough to afford decent living standards.

Why sustainable development changes behaviour (economic reasoning)

Sustainable development influences behaviour because it changes:

- **Prices** (e.g. higher cost of polluting activities; cheaper greener options)
- **Information** (e.g. labels, carbon footprints, energy ratings)
- **Rules and norms** (e.g. bans, standards, social expectations)

Individuals, firms and governments respond to:

- **incentives** (rewards/penalties),
- **constraints** (budgets, regulations),
- **values** (what society considers "acceptable" or "responsible").

Implications for individuals: behaviour, choice, habits and values

Examples of behaviour shifts

- **Energy use:** power off devices, insulation, using appliances efficiently (lower bills, lower emissions).
- **Transport:** more walking/cycling/public transport/carpooling; choosing EVs where feasible.
- **Consumption habits:** repairing, re-using, buying second-hand, avoiding fast fashion.
- **Waste:** recycling, composting, reducing single-use plastics.

Values and attitudes can shift over time:

- greater emphasis on **long-term thinking** (future costs matter);
- stronger idea of **responsibility** (individual impact adds up);
- concern for **fairness** (who pays for changes? protecting low-income households).

Potential impacts on living standards (balanced view):

- **Benefits:** healthier environment, lower energy bills, better public health, improved local areas.
- **Costs/limits:** greener goods may cost more upfront; habits are hard to change; not everyone has equal options (e.g. rural transport).

Sustainable choices are easier when **incentives, information and infrastructure** support them.

Implications for businesses: decisions and strategy

Sustainable development affects **business decisions** because firms face changing:

- **consumer demand** (more preference for ethical and low-carbon products),
- **costs** (energy, materials, waste disposal),
- **regulation** (standards, reporting, pollution limits),

Common business responses

- **Product redesign:** longer-lasting, recyclable, less packaging.
- **Production changes:** energy efficiency, renewable energy, cleaner technology.
- **Supply chain choices:** sourcing from responsible suppliers, reducing transport emissions.

Risks if firms ignore sustainability include:

- **reputational risk** (loss of customers; negative publicity);
- **regulatory risk** (fines; forced changes; compliance costs);
- **cost risk** (volatile energy/material prices);
- **market risk** (being outcompeted by greener rivals).

Opportunities if firms adapt well:

Implications for government: policy goals

Governments promote sustainable development because:

- environmental damage is often a **market failure** (external costs not in market prices);
- the state must protect **public goods** (clean air, biodiversity);
- long-run sustainability supports **economic stability** (avoiding costly crises and health impacts).

Governments can use a mix of policy tools:

1) Taxes and charges (price signals)

Taxes on pollution/carbon, landfill charges and plastic bag levies can make polluting activities more expensive so behaviour changes.

2) Subsidies and grants (encouraging positives)

Home energy upgrades, public transport investment and renewable energy supports make greener choices cheaper/more accessible.

3) Regulation and standards (rules)

Emission limits, building standards and product safety/standards can set minimum acceptable behaviour when markets fail.

Wider economic effects of gov't policies

Potential positive outcomes:

- better public health (lower healthcare costs, higher productivity);
- long-run competitiveness (green innovation, skills, exports);
- energy security (less dependence on imported fuels).

Possible challenges and controversies:

- **cost of living:** taxes can raise prices; needs compensation for low-income households;
- **employment transitions:** some sectors shrink while others grow (retraining needed);
- **political constraints:** policies can be unpopular if benefits are long-term but costs are immediate;
- **policy design matters:** poorly designed policies can be unfair or ineffective.

Good policy tries to be **effective, efficient, and equitable**.