



Relationship towards Resources

Human Geography

Nature-Centred Approach

- Non-human life has **intrinsic** value that is equal to human.
- Otherwise known as *Ecocentrism*.
- Intrinsic value refers to an object/entity already having value on its own.
- Linked to the concept of 'Deep Ecology'
 - Strong sense of self-sacrifice, usually irrelevant in cities which require industrialisation.

Human-Centred Approach

- Non-human life has **instrumental** value → It is meant to improve the quality of life for humans.
- Otherwise known as *Anthropocentrism*.
- Instrumental value refers to an object/entity providing benefits.
- Linked to the concept of 'Shallow Ecology'
 - Based on materialism and consumerism, pragmatism is key (technology as the solution).

Exam Requirements

- Understand the human-centred approach and nature-centred approach to valuing the environment and natural resources.



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Resource Appraisal

Human Geography

Definition of Resource Appraisal

- Resource Appraisal refers to the **assessment of the availability of resources**, where it can be affected by various factors (cultural, socioeconomic, technology, political factors).

Cultural: Value Systems & Traditions

- Different cultures in the world have **different value systems** (an entity seen to have value to one may not be the same to another).
- This leads to **various perceptions and recognition** of value amongst different resources.
 - E.g. Gold in India: 2/3 of gold demand is from the rural population, whereby even with a 4 times rise in prices, demand for gold remains high due to its instrumental and intrinsic value (tradition).



Socio-economic: Income levels, Education & Profitability

- Social changes influence the value and use of resources, **redefines the underlying value and meaning** of certain resources.
- **Ethnicity, Education, Income** are factors that can influence how societies value resources.
- The composition of society is frequently changing → Results in a **fast-changing** appraisal of resources with every generation.
 - E.g. *Lobster* in New England were fed to workers and servants as a cheap food resources. Only in the 19th century, with the influx of immigrants did the value change drastically.



Technological: Knowledge & Technical Capability

- Technology changes our knowledge and skills in sourcing for new resources and exploiting resources.
- Ever-changing and evolving technology has led to the discovery of new resources never before seen.
 - E.g. Groundwater was not a resources until it was made available by drilling a well and installing pumps to bring it to the surface. Likewise for purified water.
- Spatial variations seen in this factor as technology tends to be affordable only to the more developed countries which are wealthier.

Political: National resource policies & Influence of international organisations

- Political factors include actions by the state and international organisations in their involvement in resources.
- State involvement is very **deep** and **pervasive in extractive industries**.
 - State-owned enterprises operate within an extractive GPN as a regulator and operator.
 - National policies by the state can heavily guard the extent to which resources are extracted and distributed.

Political: National resource policies & Influence of international organisations

- International Organisations include the Organisation of Petroleum Exporting Countries (OPEC).
 - Nationalisation of oil production makes possible collaboration between oil producing countries to control production levels and prices.
 - OPEC has defended oil prices, heavily guarded oil resources.



Exam Requirements

- Explain the various factors that affect resource appraisal, and provide relevant examples where required.
- Tends to come out for smaller-mark essays.



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Thomas Malthus

Human Geography

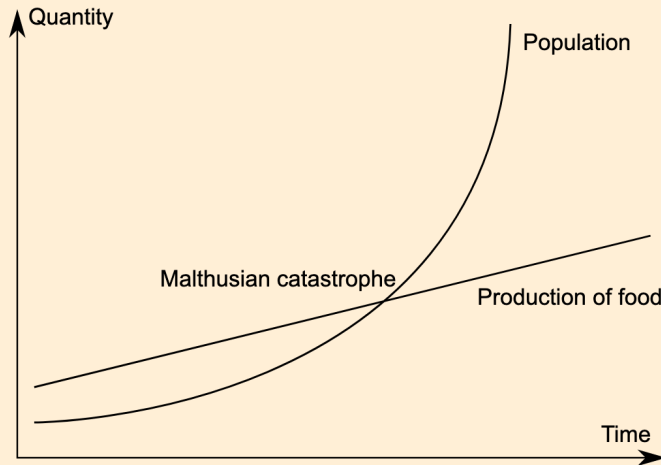
Who is Thomas Malthus

- Thomas Malthus was an economist, a scholar heavily involved in the political economy.
- Wrote numerous books on the political economy and population.



Thomas Malthus Theory [Malthusian Theory]

- Principle of population attributed to a disjuncture between **geometric rate of population increase** and the **arithmetic rate of food supply**.
- An increase in population **beyond the point** where demand exceeds supply of food → Results in a **decline of living standards** and **increases the possibility of famine, disease and war**.



Thomas Malthus Theory [Malthusian Theory] - Checks

- Thomas Malthus introduced checks to population growth → Aimed at **limiting the population increase**.

Negative checks: Abstinence → Leads to lower fertility rates

Positive checks: Anything which increases mortality (e.g. low living standards, low sanitation)

- He believed that with such checks, we would be able to maintain food supply by keeping population growth 'in check'.

Who is Thomas Malthus akin to?

Thomas Malthus = Thanos



Benefits to the Malthusian Theory

- Shed light on the fact that populations must be controlled to a certain extent (though not with evil tactics) and there is a need to ensure food supply remains available to all.

Limitations to the Malthusian Theory

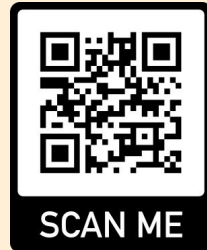
- Highly pessimistic outlook.
- Malthus used potential growth figures and not the actual growth of populations.
- Malthus never considered the advances in technology → Allowed for increase in food supply to potentially match the rate of population growth.
- Additionally, **changing mindsets** and perceptions today in regard to **contraception/family planning/policies** has led to stabilization of population growth.
 - E.g. China's One child policy

Exam Requirements

- Explain the Malthusian Theory, along with its benefits and limitations/flaws.
- May require comparison with other theorists (David Harvey, Ester Boserup) in essay writing.



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Ester Boserup

Human Geography

Who is Ester Boserup

- Ester Boserup was an economist, studied agricultural and economic development, and worked at the United Nations.



Ester Boserup and Population Growth Theory

- Saw population growth as the root of innovation and civilisation.
- Ester Boserup was highly focused on the Green Revolution → Technology as the key to increasing food supply (so as to keep up with population growth).

Green Revolution

- The **Green Revolution**: A set of research technology transfer initiatives occurring between 1950 and 1960s.
- Brought about
 - **Genetically-Modified (GM) foods** → Resistant to drought, pests and disease.
 - **Aquaculture** → Breeding and harvesting of plants, fish, shellfish, and other organisms in all types of water environments.
 - **Vertical Farming** → A sustainable alternative to saving space while increasing yields.



Benefits to Ester Boserup's Theory

- Highly **optimistic** and **pragmatic** outlook that focused on technology as the solution to solving societal issues (such as food shortage).
- **Relevant** and **accurate** in today's society.

Limitations to Ester Boserup's Theory

- Environmental problems are still bound to emerge (potentially other trade-offs).
- Most advanced technology was only found in developed countries → Such countries were not the ones experiencing food shortages → A need for transfer of technology to areas **closest to a Malthusian crisis**.

Exam Requirements

- Explain Ester Boserup's Theory of Population Growth and Food Supply, along with its benefits and limitations/flaws.
- May require comparison with other theorists (David Harvey, Thomas Malthus) in essay writing.



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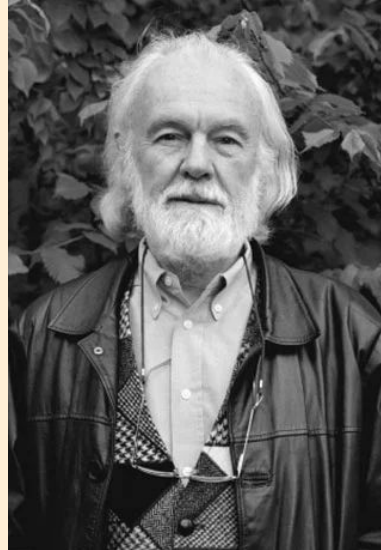


David Harvey

Human Geography

Who is David Harvey

- David Harvey is a Marxist economic geographer and Distinguished Professor of geography and anthropology.



Marxist Theory

- Marxist Theory stated that production is characterised by **private ownership** of production, where **extraction of surplus value** is solely for the **owning class**.
- Production is for the purpose of **capital accumulation** and wage -based labour.
- In today's society, we see this behaviour amongst **TNCs** (Transnational Corporations → *Link to Theme 2.1*).
- States that there are **2 outcomes** to this:
 - Over-accumulation of goods produced due to few buyers.
 - Over-exploitation of nature and the environment.

David Harvey - Spatial Fix

- Brought the idea of Spatial Fix to light.
- **Spatial Fix** refers to one (an organisation/company) going to **another area** to get resources so as to **solve immediate problems** in its own area.
- Shows that capitalism would not survive *without being geographically expansionary*.
- Overtime, with continual over-exploitation of nature and environment → Degradation takes place → Leads to **scarcity of resources** → Collapse of the global economy and environment.

Spatial Fix in simple terms

- Taking over and eating up more land and resources (that belongs to someone else) so as to fix yourself → Leaves that land scarce of resources → Results in a vicious cycle due to increase in companies → Faster depletion of resources

David Harvey - Temporal Fix

- Also introduced the idea of Temporal Fix.
- Temporal Fix refers to idea that while technology can expand our current resource base, especially when consumption is reduced but this may not be sustained in the long-term.
- Revolves around the idea that everything is temporary, be it land, nature, and even technology → All will fade in the long-run as global resources deplete.

Benefits to David Harvey's Theory

- Somewhat relevant in bringing the ideas of temporal and spatial fix → Increasingly, TNCs are seen to be the **driving force** behind **exploitation** of **labour and land** that is foreign to their origin (e.g. Africa mining).

Limitations to David Harvey's Theory

- A rather pessimistic outlook.
- Focuses highly on the fact that **capital has turned environmental issues into profit-making opportunities** → Not entirely true in reality (especially with emergence of NGOs).
- Nature is viewed as **capital** that is simply used for **production** and value-adding to goods/services → Narrow-sighted view.

Exam Requirements

- Explain David Harvey's view on resources, from being aligned with the Marxist Theory, and ideas of Spatial Fix and Temporal Fix, along with its benefits and limitations/flaws.
- May require comparison with other theorists (Ester Boserup, Thomas Malthus) in essay writing.



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Nature of Resources - Classification & Resource Availability

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Classification of Resources

1. Non-Renewable Resources

- Minerals that take millions of years to form and are finite.

2. Renewable Resources

- Naturally renewed given a period of time.
- Some can be exploited to exhaustion if overused (e.g. animals, trees).

3. Perpetual Resources

- Can be depleted temporarily (wind, water, air), but is always there.

4. Potential Resources

- Known to exist but yet to be used formally.

Resource Availability

1. Proven Reserve

- Deposits already discovered and known to be extractable under current demand, price and technological conditions.

2. Conditional Reserve

- Deposits discovered but not economically feasible to work at current price levels using current technology.

3. Hypothetical Reserve

- Not known deposits but expected to find in the future in partially-developed areas.

4. Speculative Reserve

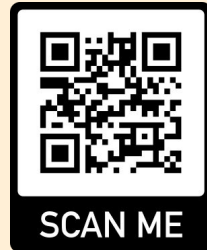
- Barely much evidence of, but potential resources found. May lose speculative status.

Exam Requirements

- Understand the 4 various classification of resources, as well as the different types of reserves (resource availability).



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Characteristics of Extractive Industries

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Characteristics of Extractive Industries

1. Location Specific

- Extractive Industries are localised, specific to one location.
- They require foreign firms to travel to these locations to extract the resources.
 - E.g. De Beers controls most of the worlds diamond resource, in the Africa region.

2. Capital and Technology Intensive

- Extraction of certain resources require specific infrastructure (roads, machinery).
- Some of which are controlled by the government.

Characteristics of Extractive Industries

3. Mixture of private and state-owned firms

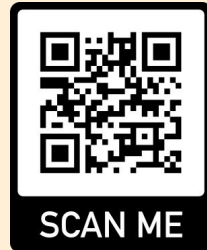
- 3 various types of relationships
 - **State ownership and state exploitation** [Benefits of extraction are shared by all citizens in the form of government revenue]
 - **State ownership and private exploitation** [Corporations pay licensing fee to extract a publicly owned natural resource]
 - **Private ownership and private exploitation** [Private firms are entitled to reap all the profits operations → Government has lesser control]

Exam Requirements

- Explain the various characteristics of extractive industries in the world.



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Impacts of Extractive Industries

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Environmental Impacts

1. Oil Leakages

- In the case of oil industries, oil leakages are common → Pollutes the ocean, causing wildlife to suffer.
- Additionally, oil-contaminated water and animals (fishes) can have a detrimental impact on fishing activities and tourism which affects the livelihood of those living in the area.

Environmental Impacts

2. Soil erosion and deforestation

- A result of the mining industries and oil industries is that land has to be cleared in order to make way for such activities to be carried out.
- This can lead to **high rates of deforestation** which removes the top soil layer → Causes **accelerated soil erosion**.
- Additionally, washing away of soil layers can cause a build-up of sediments in the river → Results in **silting of the river** which is a threat to biodiversity.

Environmental Impacts

3. Air and Water pollution

- Underground mines require heat and fire in order for mining activities to take place → Such fires that burn for prolonged periods of time would **release greenhouse gas emissions** such as methane, carbon, etc.
- Additionally, waste deposits may seep into groundwater, causing **contamination of water** that will affect nearby locals, biodiversity and crops.

Regenerative Capacity of environmentally sensitive areas

- Regenerative Capacity of environmentally sensitive areas refers to an environment's ability to renew and be restored to its original state.
- Environmentally sensitive areas look at trees, rivers and biodiversity.
- In general, the regenerative capacity of these areas are **very slow and low** →
Trees take long periods of time to grow, soil fertility is diminished upon soil erosion.

Economic Impacts

1. Boost economic performance of a country

- A positive economic impact is that extractive industries can contribute significantly to the performance of an economy.
- In some countries (especially LDCs) → Exports make up the bulk of exports → Rise in exports can raise the level of national income of a country, leading to a rise in living standards for all.

Social Impacts

1. Displacement of populations

- As resources of extractive industries are **location specific**, local communities in the area may have to be evicted in order to make way for extractive activities to take place → Social conflicts as locals are likely to be unhappy in losing their land which could be of **sentimental value**.

Social Impacts

2. Conflicts in utilisation of land

- Often, extractive industries bring about an opportunity cost due to scarcity. Limited land has to be utilised for either extractive activities, or for other activities such as farming.
- This can lead to **conflicts over the management and utilisation of land**, as well as how it can be shared while managing its harmful effects.

Exam Requirements

- Be able to explain the various impacts of extractive industries.
- Understand the regenerative capacity of environmentally sensitive areas.



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The 'Resource Curse' Thesis - Causes

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The 'Resource Curse' Thesis

The 'Resource Curse' Thesis states that **high levels of resource endowment** in mining economies **do not necessarily** translate to **high levels of economic development**, and could **in fact** lead to their **underperformance**

Reasons for underperformance

1. Reliance on expat specialist labour leading to limited job creation

- Extractive industries are **capital-intensive** → Requires labour to be able to manage and operate high-tech machinery → High-skilled labour needed → Results in low demand for local labour as locals (in LDCs) do not possess the necessary skill sets → **Expat specialists are brought in from overseas** instead who end up taking the jobs of locals.

Reasons for underperformance

2. Economic leakage due to repatriation of profits

- Extractive industries are **dominated by private firms** → All private firms seek to maximise profits → However, many originate from DCs but operate production in LDCs where the natural resource is located → Results in the **profits earned to be repatriated back to the home economy** where the firm originates from → Host country (the one with the resource) will not benefit as much from the extractive industries.

Reasons for underperformance

3. Optimisitc bias from the government

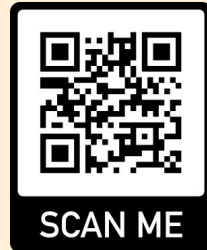
- Governments in LDCs tend to see natural resources as a potential for growth and are overly optimistic that the extractive industry will succeed.
- As a result, there is a lack of focus on other sectors of the economy (education, agriculture) and funding is channeled towards ensuring that the extractive industries prosper.
- This may affect overall productivity and lead to a mis-distribution/proportion of funds to the wrong areas of the economy.

Exam Requirements

- Be able to explain the various reasons leading to the underperformance of resource-rich economies.
- This chapter requires you to weight the various evaluation techniques to craft a well-balanced essay → More skill-based as compared to content-based essay writing [*Join the channel or head over to Patreon to learn how to do this!*]



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The 'Resource Curse' Thesis - Exceptions

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Exceptions to the 'Resource Curse' Thesis

- There are exceptions to the 'resource curse' thesis when economies pursue strategies that can steer them into **benefitting from their natural resource endowment** instead.

Strategies that should be pursued:

- 1) Economic Diversification
- 2) Sovereign Wealth Funds

Strategies to escape the 'Resource Curse'

1. Economic Diversification

- Economies that diversify their economy stand to benefit from all-rounded performance.
- It involves shifting focus away from the extractive industries as a single source of income, and focusing its efforts to building other sectors of the economy as well.
- Diversifying the economy helps to prevent the economy from collapsing should one sector fail and helps to ensure that the economy as a whole is not vulnerable to external shocks of the global markets.

Strategies to escape the 'Resource Curse'

1. Sovereign Wealth Funds

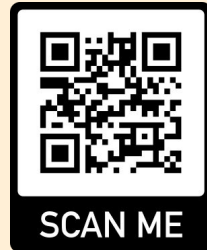
- A sovereign wealth fund is a state-owned investment fund that invests in real and financial assets, as well as aims to redistribute income back to the people.
- The establishment of a sovereign wealth fund by an effective government would ensure that revenue is well distributed back to its people, invested into growing national income further, or ensure that fiscal deficits are able to be funded.

Exam Requirements

- Be able to explain the exceptions to the 'Resource Curse' thesis by explaining how an economy can diversify and how wealth funds should be established.
- This chapter requires you to weight the various evaluation techniques to craft a well-balanced essay → More skill-based as compared to content-based essay writing. Additionally, there will be a need for specific case studies. [***Join the YouTube channel or head over to Patreon to learn how to do this!***]



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Causes of Water Scarcity

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2 types of water scarcity

1) Absolute water scarcity

- Physical access to water is limited, usually due to climate.

2) Economic water scarcity

- Due to a lack of human ability to retrieve water, usually when a population lacks the monetary means to access water.

Causes of water scarcity

1. Population growth
2. Climate change
3. Lack of investment in water infrastructure

1. Population growth

- An increase in population over the years has resulted in **increased consumption of water** - this originates from the need for water as a basic necessity, as well as increased food consumption which requires water (agriculture needs included).
- Additionally, **industrialization** has stimulated increased water usage as water is required for many industrial processes to take place.

2. Climate change

- The rise in greenhouse gas emissions as a result of industrialization has resulted in accelerated climate change.
- As a result, warmer temperatures and fluctuating weather patterns have led to greater occurrences of flooding as well as droughts.
- Droughts today are more intense and more frequent → Leading to greater absolute water scarcity.

3. Lack of investment in water infrastructure

- Poor planning by the government and a lack of foresight to implement the necessary infrastructure to bring in water supply results in many of the less fortunate suffering from a lack of water.
- Countries which lack the funds and monetary means to invest in water infrastructure may also face greater economic water scarcity.

Exam Requirements

- Be able to explain the various causes of water scarcity, providing relevant case studies to support the cases for absolute and economic water scarcity.



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Strategies to manage water scarcity

Human Geography

3 Strategies to manage water scarcity

1. Conservation
2. Desalination
3. Privatisation of water resources

1. Conservation

- Conservation of water refers to **activities, policies and strategies** to manage freshwater and **protect water resources**, while meeting current and future demand.
- Specific strategies include;
 - **Educational campaigns:** Seeks to change the mindset of consumers, encouraging them to save water through changing themselves.
 - **Tiered water rates:** A tariff that charges consumers for the consumption of water. Heavier users can be taxed more.
 - **Switching to water-saving appliances:** Producing and encouraging a switch to water-saving equipment and appliances.

1. Conservation

Benefits

- Effective in acting as a bottom-up strategy, hence able to tackle the root cause of scarcity which is high water consumption.

Limitations

- Conservation efforts depend greatly on the receptiveness and mindsets of consumers.
- More applicable to wealthier countries which are not yet facing absolute water scarcity.

2. Desalination

- Desalination is the process of **removing salt from seawater**, turning saline ocean water into **drinking water**.
- This is done through reverse osmosis and distillation.
 - Reverse osmosis pushes water through small filters, leaving salt behind.
 - Distillation involves heating water and collecting the water vapour.

Benefits

- Has a huge potential to supply amounts of water sufficient for large populations.
- A strategy that is sustainable as it involves renewing water resources.

2. Desalination

Limitations

- Desalination is a very costly strategy as it requires relevant infrastructure and technology that is not readily available.
- Desalination plants take in water directly from the ocean → May affect wildlife and biodiversity.

3. Privatisation of water resources

- The main outcome of privatisation of water resources is **bottled water**.
- Privatisation of water requires private firms to take the lead in owning the water resource and converting it into clean water for all to consume/utilise.

Benefits

- As firms aim to maximise profits, they would cut costs in the producing of bottled water, ensuring an efficient allocation of resources.
- Firms also have the capital to invest in higher-technology that will enhance water supply.

3. Privatisation of water resources

Limitations

- May have equity issues - only those with money votes can afford to purchase the bottled water, leaving the less fortunate with lesser/no access to water resources.
- Bottled water utilises tonnes of plastic which adds to plastic waste. Moreover, the production process and life cycle is very harmful to the environment as greenhouse gases are released during burning and transporting of plastics.

Exam Requirements

- Explain and discuss the various strategies used to manage water scarcity.
- Link the various strategies to the causes of water scarcity (if applicable), and bring in relevant case studies to support the strategies discussed. [***Join the YouTube channel or head over to Patreon to learn how to do this!***].



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Managing Transboundary Sources of Water Supply

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Causes for Transboundary Water Conflicts

1. Quality

- Water quality refers to the condition of the water, and it is diminished when water is contaminated with waste, pesticides, etc.
- Water quality tends to poorer downstream.

2. Quantity

- Water quantity refers to the amount of water present. As water is a scarce resource, the amount of water a country has access to can become a potential area for conflict.

3. Time

- The time refers to the various different time periods where water is available → Winter vs Summer conditions.

Strategies to manage transboundary water conflicts

-

3. Privatisation of water resources

Limitations

- May have equity issues - only those with money votes can afford to purchase the bottled water, leaving the less fortunate with lesser/no access to water resources.
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