



# DP IB Environmental Systems & Societies (ESS): HL



Your notes

## 1.1 Perspectives

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## Factors Influencing Perspectives

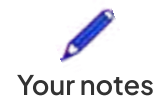
# Understanding Perspectives

## What is a perspective?

- A perspective is how an individual **sees** and **understands** a particular situation
  - Perspectives are formed based on individual assumptions, values and beliefs
  - They are shaped by a combination of personal experiences, cultural background and societal influences
  - For example, perspectives are often informed and justified by various factors including:
    - Sociocultural norms
    - Scientific understandings
    - Laws
    - Religion
    - Economic conditions
    - Local and global events
    - Lived experience (i.e. events someone has personally experienced during their lives)
- Perspectives are **not fixed** and can **evolve** over time as individuals gain new experiences and insights

## Influence of perspectives

- Perspectives vary widely among **individuals** and **groups**, leading to diverse views on **environmental** and **social issues**
  - For example, perspectives on climate change may differ based on factors such as education, political beliefs, cultural background or geographical location
- Perspectives influence people's **choices** and **actions**
  - For example, someone with an environmentalist perspective might prioritise sustainability in their lifestyle choices, even if this is more financially costly to them, while others may prioritise economic considerations (i.e. they may choose things that are less expensive but also less environmentally friendly)
- Perspectives shape how individuals **interpret information** and **events**



- For example, someone with a pessimistic perspective might view an environmental issue as evidence of inevitable wider ecological collapse, whereas an optimist might see it as a temporary challenge to overcome and find solutions to

## Environmental perspectives

- Different perspectives on environmental issues can lead to contrasting approaches to conservation and resource management
  - For example, those with a more **human-based perspective** may prioritise human interests and well-being in environmental decision-making
    - This perspective might support conservation measures that benefit humans directly, such as clean water initiatives
  - In contrast, those with an **environmentalist perspective** may place great value on the intrinsic worth of nature and ecosystems
    - Supporters of this perspective may prioritise biodiversity conservation and ecosystem health, even if it does not directly benefit humans

## Social perspectives

- Social perspectives shape attitudes and responses to social issues such as poverty, inequality and justice
  - For example, a **collectivist perspective** may prioritise the well-being of the community over individual rights
    - Policies based on this perspective might focus on social welfare programs and taxes
  - In contrast, an **individualistic perspective** emphasises personal responsibility and freedom of choice
    - Policies based on this perspective might involve promoting entrepreneurship and reducing government intervention

## Distinction between perspectives and arguments

- It is important to note that a perspective is **not the same** as an argument
  - Arguments are constructs used to **support** or **challenge** a particular perspective
  - They are logical or reasoned explanations presented to persuade other people of the **validity** of a perspective (i.e. that a particular viewpoint is **credible** and **true**)
- Arguments can be constructed to **defend** a personally held perspective or to **criticise** and **counter** an opposing viewpoint

- For example, someone who is advocating for stricter environmental regulations might present arguments based on scientific evidence to support their perspective
- On the other hand, someone opposing these regulations might present counterarguments based on economic concerns or individual freedoms



### Examiner Tips and Tricks

Remember—perspectives are highly subjective and can vary widely based on someone's individual experiences and beliefs.



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## Values & Environmental Perspectives

# Understanding Values

## What are values?

- Values are **qualities** or **principles** that people believe have **worth** and **importance** in life
  - They guide our behaviours, attitudes and decisions
  - Examples include honesty, integrity, fairness and compassion

## Influence of values

- Values affect people's priorities, judgements, perspectives and choices
  - They are deeply personal, but a variety of **cultural** and **social** factors also play a role.
  - For example, in some cultures, respect for elders is highly valued, shaping how individuals interact within society
  - In line with the principles of **sustainability** and **conservation**, movements like Greta Thunberg's Fridays for the Future call for immediate action on climate change

## Values in community

- Within our communities, we share and shape our values
  - They are reflected in how we communicate and interact with others, both within our own community and with external communities
  - For example, a community that values environmental sustainability may organise clean-up events or support green policies

## Values in organisations

- Organisations also have values, which can be seen in their communication and actions
  - These values are often expressed through **advertisements**, **social media**, **policies** and organisational **decisions**
    - For example, a company that values diversity and inclusion may have policies supporting equal opportunities and representation in their workforce
  - Companies like Patagonia demonstrate values of **environmental stewardship** through initiatives like donating a portion of profits to environmental causes

## Tensions from different values

- Different values often lead to tensions between individuals or between organisations
  - Conflicts can happen when important values clash, like when some people want to freely express themselves but others want to be respectful of different cultures
  - In multicultural societies, navigating these tensions requires **understanding** and **respecting diverse values**



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## Value Surveys

### Understanding perspectives on environmental issues

- Value surveys investigate the perspectives of social groups towards various environmental issues
- They help us understand how environmental concerns are **viewed** and **prioritised** by individuals or communities
  - For example, a survey could explore attitudes towards renewable energy adoption, waste reduction, or conservation efforts
  - Another survey could ask about attitudes towards using public transportation to reduce carbon emissions

### Effective design of value surveys

- A well-designed environmental value survey is able to:
  - Take **different viewpoints into account**
  - Look at the whole range of opinions within a group about environmental matters
- The results of an effective survey should be able to:
  - Give insights into attitudes, beliefs and values that influence how people view and respond to local and global environmental challenges

### Implementation of surveys

- **Surveys, questionnaires, or interviews** can be used to gather data on environmental attitudes
  - Using **online survey tools** can be very useful for:
    - Collecting data from a wider audience
    - Collecting a greater volume of data
    - Collecting data in a shorter amount of time
    - Efficient analysis of data



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- **Closed-ended questions** are good for **quantitative analysis** (i.e. they provide structured data that can be easily quantified and analysed statistically)
- Closed-ended questions are those that provide respondents with a **fixed set of options** to choose from
- Examples include multiple-choice questions, rating scales and Likert scale items
  - For example, in a survey about environmental attitudes, closed-ended questions could include:
    - Which of the following renewable energy sources do you believe is most effective in reducing carbon emissions? (a) Solar (b) Wind (c) Hydroelectric (d) Geothermal
    - Indicate the extent to which you agree or disagree with the statement: "Using public transportation is an effective way to reduce air pollution". Strongly agree, Agree, Neutral, Disagree, Strongly disagree
    - On a scale of 1 to 5, with 5 being very likely, how likely are you to recycle paper products?
- Responses to these questions can be easily quantified (given a value or score)
  - This allows statistical analysis to be used on the data
  - This helps identify **trends**, **correlations** and **patterns** in attitudes towards specific environmental issues
    - For example, there is an environmental education campaign designed to increase recycling rates
    - It is important to measure the **effectiveness** of this campaign
    - A survey can be used to collect quantitative data on **attitudes** towards recycling
    - This can then be **correlated** with data on actual **actual recycling rates**
- Surveys or interviews can also include **open-ended questions** to help capture more detailed responses
  - These types of response are more difficult to analyse
  - However, they can still be valuable for gaining deeper insights into individual viewpoints

## Behaviour-time graphs

- If value surveys are repeated over time, the results can be used to produce behaviour-time graphs
- Behaviour-time graphs show **changes** in behaviours or lifestyles **over time**
  - They help to visualise trends, patterns and shifts in behaviour related to **environmental actions**
- Behaviour-time graphs can track changes in daily habits over a set period of time, such as:

- Energy consumption
- Waste generation
- Transportation choices
- For example, a graph could illustrate a decrease in household electricity usage over several months
  - This could be due to energy-saving measures like installing LED lights or adjusting thermostat settings
- These graphs can also illustrate changes in environmental behaviours, such as:
  - Recycling rates
  - Composting practices
  - Water conservation efforts
- Behaviour-time graphs can be valuable tools for:
  - **Monitoring progress** towards **sustainability goals**
  - Evaluating the **effectiveness** of **environmental initiatives**
- They can help to:
  - Visualise the impact of interventions
  - Identify areas for further improvement

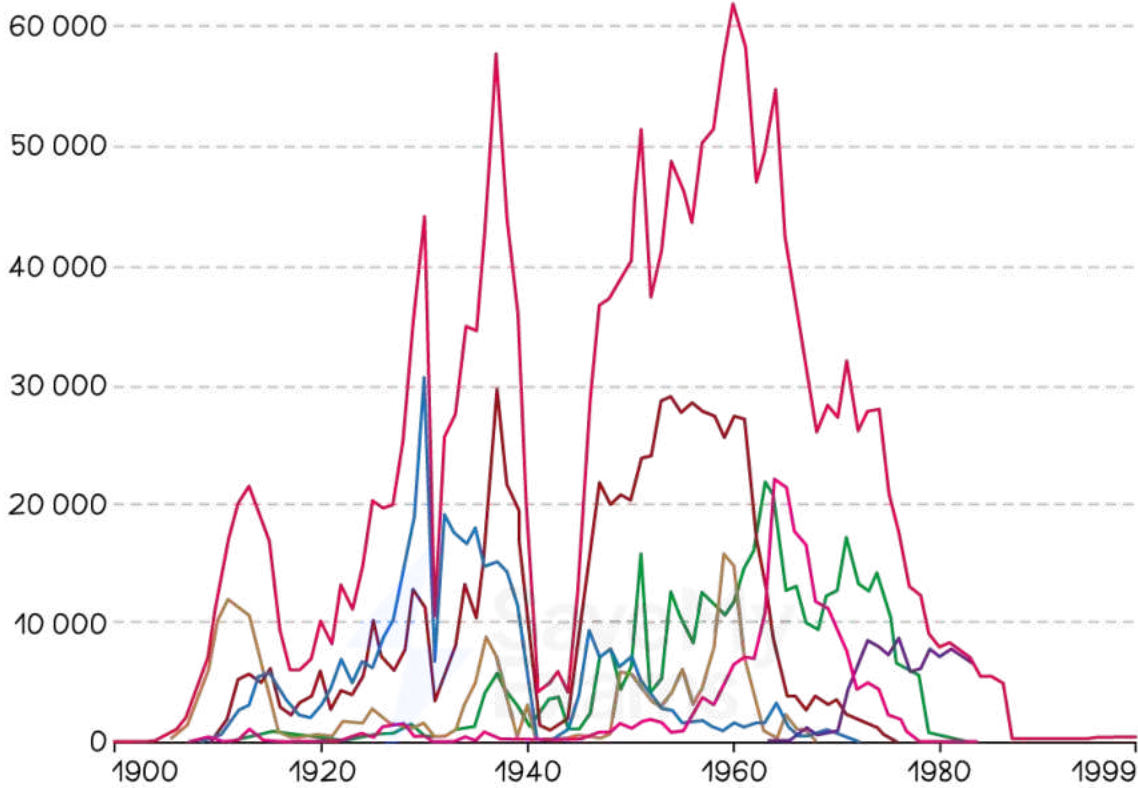


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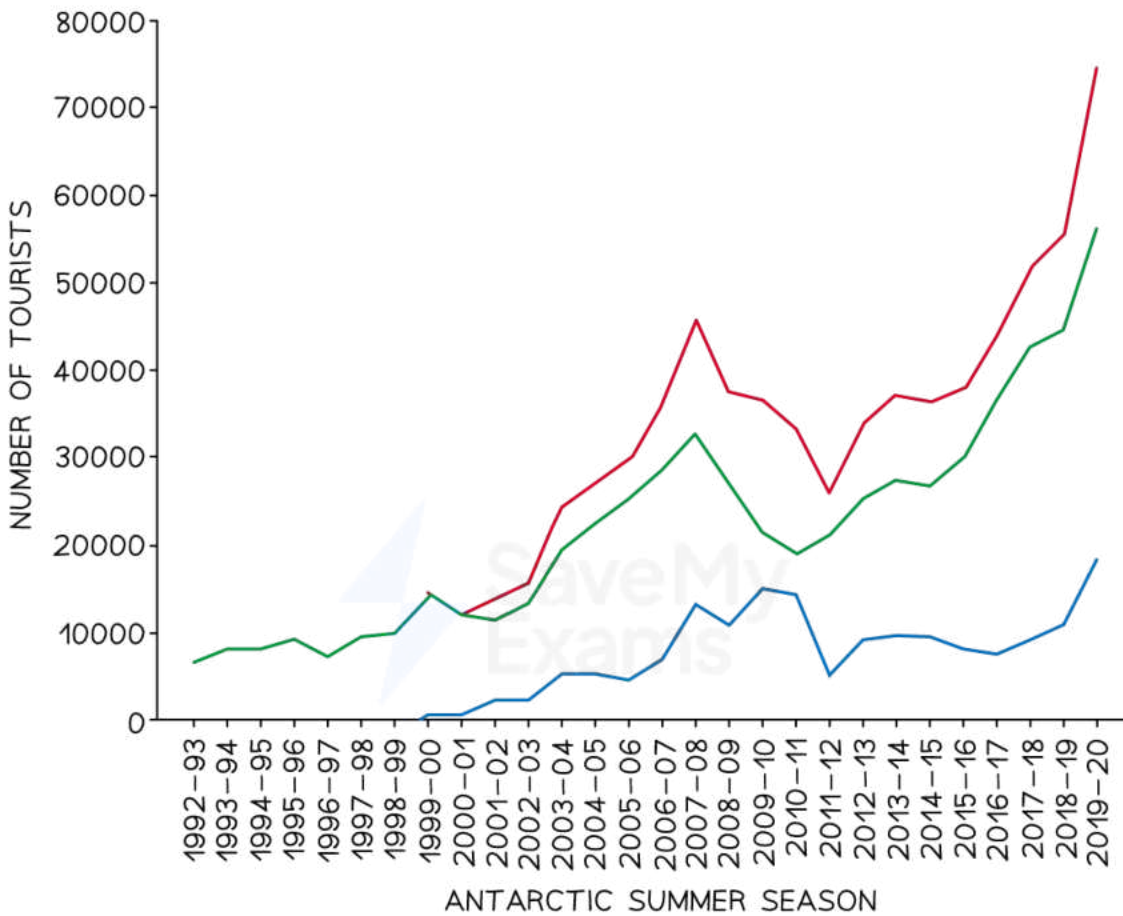


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An example of a behaviour-time graph showing the number of whales killed between 1900 and 1999



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**KEY:**

- LANDING TOURISTS
- CRUISE-ONLY TOURISTS
- TOTAL TOURISTS

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Another example of a behaviour-time graph showing the number of tourists visiting Antarctica between 1992 and 2020



**Examiner Tips and Tricks**

It is important to consider the diversity of perspectives within a social group when designing value surveys and analysing the results. You cannot assume that everyone will have had the same experiences or facing the same challenges. This means their views may be very different, even if they are from the same group or community.



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## Worldviews & Environmental Perspectives

# Understanding Worldviews

## What are worldviews?

- Worldviews can be described as the **lenses** through which groups of people to **see** and **understand** the world around them (it is just their "view of the world")
- They are made up of cultural beliefs, philosophical ideas, political opinions, religious teachings and many other factors
  - For example, in some cultures, the idea of family and community is highly valued, while in others, individual achievement and success are prioritised
- Worldviews shape how people **think**, what they **believe** and how they **behave**
- They influence our moral compass, our judgments and our decisions
  - For example, a person who grew up in a religious household may have different views on topics like abortion or marriage compared to someone who didn't

## How do worldviews differ from perspectives?

- Worldviews generally encompass a **broader** and **deeper** set of beliefs, values and ideologies that shape how individuals or groups perceive and interpret the world around them, whereas perspectives are usually more **specific** and **immediate** viewpoints or attitudes individuals hold on **particular issues or topics**
  - Perspectives are often more situational and may be more likely to change based on circumstances or new information

## Impact of technology and media

- With the rise of the internet and social media, people are exposed to a wide range of worldviews beyond their local community
  - For example, a teenager from one part of the globe can quickly learn about different world cultures, religions, and political ideologies just by scrolling through their social media feed
- Attempts to categorise different perspectives into groups can be challenging because individuals often have a **complex mix** of beliefs and opinions
  - For example, a person might identify as liberal on social issues but be more conservative on economic policies





## Examiner Tips and Tricks

Remember that worldviews are diverse and complex, and individuals may hold a variety of beliefs that don't fit neatly into categories.

You should be able to use real-world examples to illustrate different worldviews and their impact on society. Whilst studying the ESS course, make a note of any case studies or examples you come across that could be used to demonstrate certain worldviews.



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## Environmental Value Systems

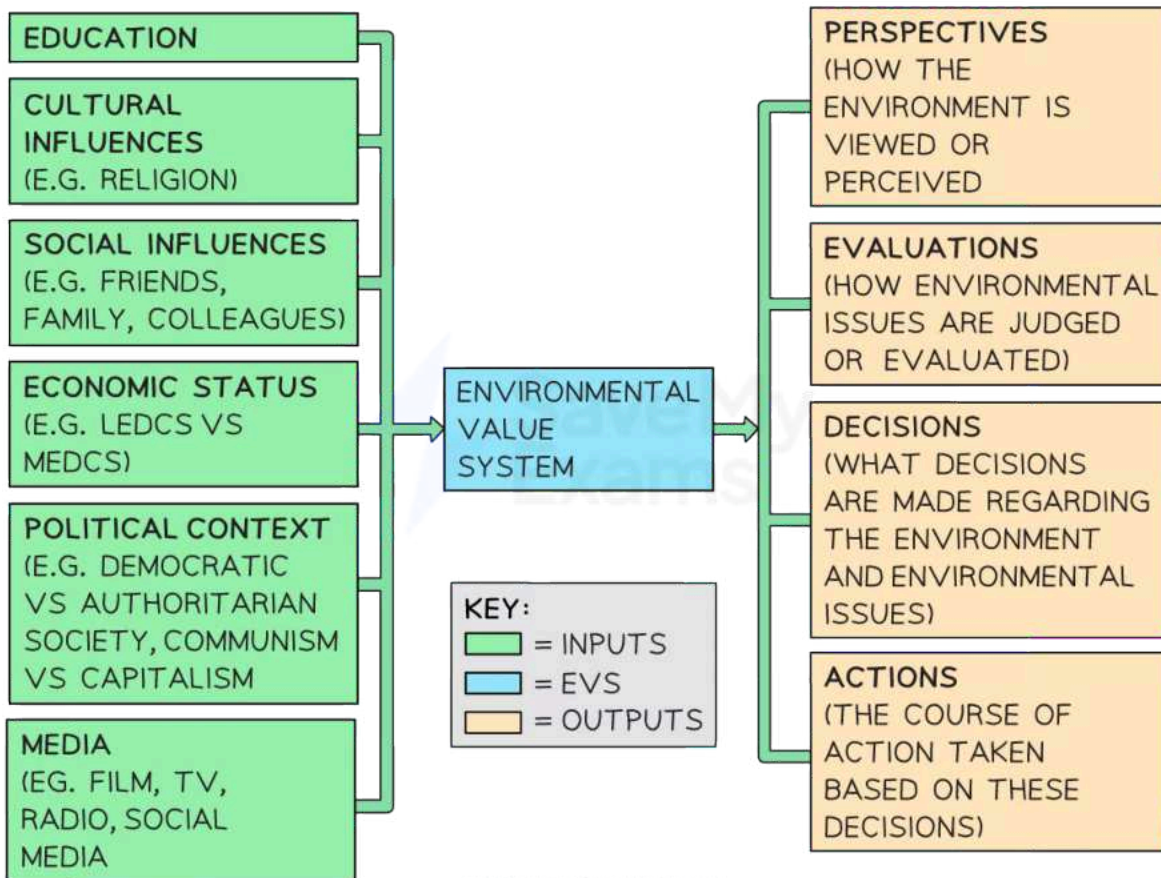
- An environmental value system (EVS) is the way that an individual, or any group of people, perceives the **environment** and the **resources** it provides them with
  - That includes you - your environmental value system determines the way that you perceive and evaluate **environmental issues**, as well as the course of **action** you might decide to take regarding these issues
- A person's or group's environmental value system is shaped and influenced by a **variety of factors**, including cultural, religious, social, political, economic and environmental factors
  - These factors act as **flows of information** into individuals within **societies**
  - Individuals then **process** and **transform** this information into their **perception of the environment** and how to act on environmental matters

## EVS inputs and outputs

- An environmental value system is considered as a **system** because it is determined by a set of **inputs** (i.e. the factors described above) and generates a set of **outputs** (in the form of the person's or group's perceptions, evaluations, decisions and actions)



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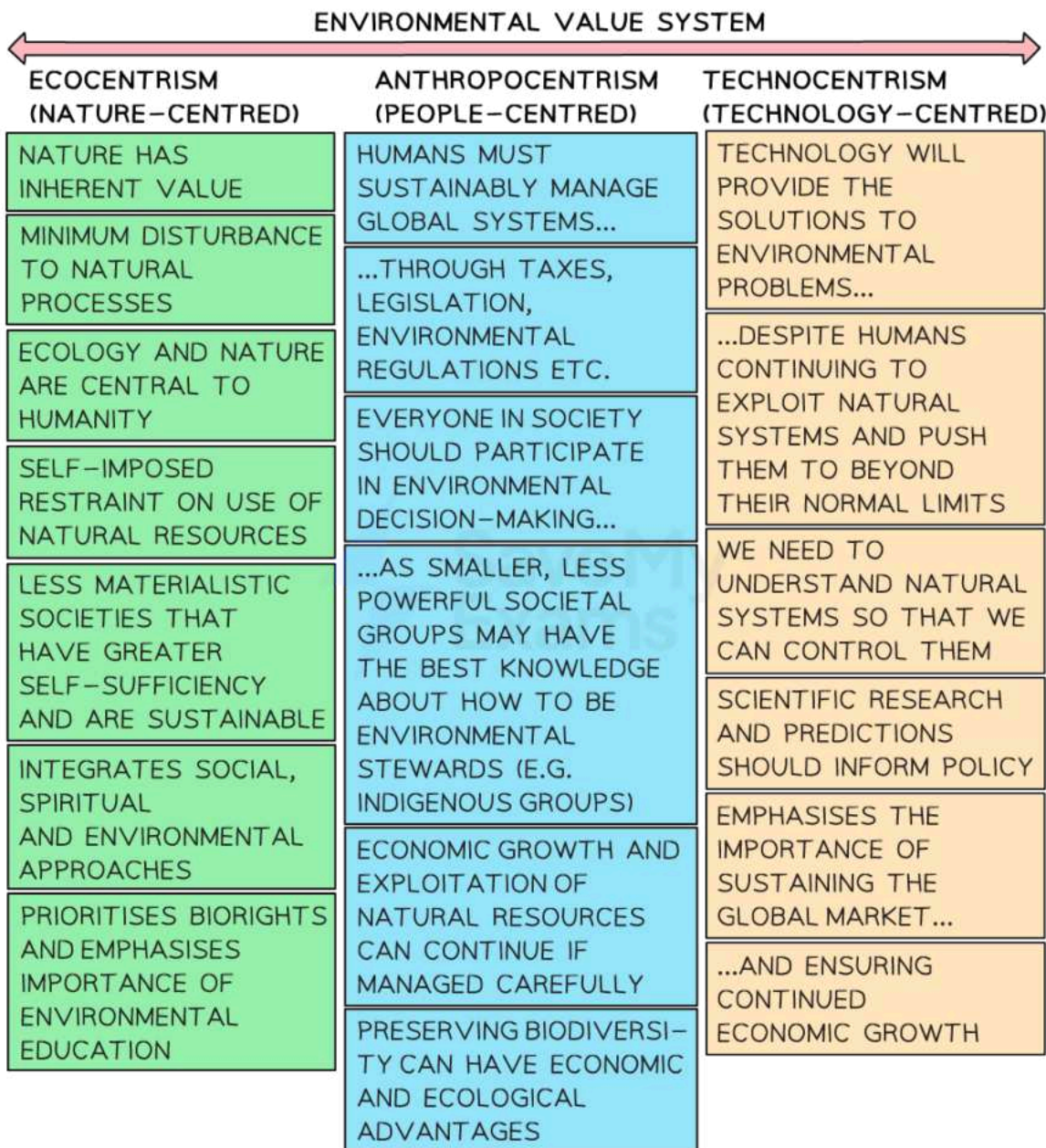
*Like any system, an environmental value system (EVS) has a set of inputs and a set of outputs*

## Environmental value system categories

- Although there is a very **wide spectrum** of environmental value systems, environmental perspectives or worldviews can be broadly divided into three categories. These are:
  - **Ecocentric** environmental value systems (ecocentrism)
  - **Anthropocentric** environmental value systems (anthropocentrism)
  - **Technocentric** environmental value systems (technocentrism)



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*There is a very broad range of environmental value systems held by people and groups around the world – on a basic level these EVSs usually fall into one of three main categories*

## Ecocentrism

- Ecocentrism is a **philosophical** and **ethical** approach that prioritises the **intrinsic value** of nature and the environment **over human needs and interests**



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- This approach emphasises that all living organisms and ecosystems have **inherent worth** and should be **protected** for their own sake
- Ecocentrism advocates for **sustainable practices** that maintain the **balance** and integrity of ecosystems and the natural world, rather than exploiting them for human benefit
- This approach is often associated with environmental movements and **conservation efforts** that aim to protect biodiversity, ecosystems and natural resources

## Anthropocentrism

- Anthropocentrism is a worldview that places human beings at the centre of the universe, **prioritising human needs and interests** over those of other living beings and the environment
- This approach emphasises that humans have the **right** to use natural resources and ecosystems for their **own benefit**
- Although an anthropocentric viewpoint would ideally involve sustainable managing global systems, in reality, anthropocentrism often results in **unsustainable** practices such as **overexploitation** of natural resources, habitat destruction, and pollution
- This approach only values preserving biodiversity when it can provide **economic and ecological advantages to humans**
- This approach is often **criticised** by environmentalists and conservationists for ignoring the intrinsic value of nature and its ecosystems

## Technocentrism

- Technocentrism is a worldview that places **technology** and **human ingenuity** at the centre of all problem-solving and decision-making processes, often overlooking the impact on the environment and other living beings
- This approach emphasises the use of technology to **overcome** environmental problems and maintain **human well-being**
- Technocentrism often assumes that all environmental problems can be **solved** through **technological innovation** and economic growth, which may lead to neglect of the need for conservation and sustainability
- This approach is often criticised by environmentalists for being **short-sighted** and ignoring the **complex** and **interconnected nature** of environmental issues

### Strengths and Limitations of Contrasting EVSs

EVS	Advantages	Disadvantages
<b>Ecocentrism</b>	Reuses materials so more sustainable	Conservation can be expensive with no obvious or quick economic return





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	<p>Minimises environmental impact by encouraging restraint</p> <p>Better for long-term human wellbeing</p> <p>No need to wait for technology to develop</p>	<p>Many countries are still developing economically and argue they should be allowed to continue</p> <p>Difficult to change individual attitudes</p>
<b>Technocentrism</b>	<p>Substitutes materials so avoids costly industrial change</p> <p>Provides solutions so people are not inconvenienced</p> <p>Allows social and economic progress</p>	<p>Allows even greater rates of resource consumption</p> <p>May give rise to further environmental problems</p> <p>High cost</p> <p>Humans increasingly disconnected from nature</p>



## Case Study

### Plastic pollution in the oceans

Plastic pollution in the oceans is a major environmental problem. Humans might use an ecocentric approach or a technocentric approach to try and solve this problem.



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**Plastic pollution and juvenile fish—Indonesia (Photo by Naja Bertolt Jensen on Unsplash)**

Ecocentric approach:

The ecocentric approach prioritises the preservation of natural ecosystems and biodiversity. In the context of plastic pollution, an ecocentric approach would focus on reducing the amount of plastic waste that enters the oceans in the first place.

This could involve reducing the production and use of single-use plastic items, implementing stricter regulations and enforcement to prevent illegal dumping of plastic waste into the oceans and promoting sustainable alternatives to plastic products. Additionally, an ecocentric approach would prioritise the restoration and protection of marine ecosystems that have been impacted by plastic pollution, such as coral reefs and sea turtle nesting habitats.

Technocentric approach:

The technocentric approach relies on technological solutions to environmental problems. In the context of plastic pollution, a technocentric approach would focus on developing new technologies to clean up plastic waste from the oceans and prevent further pollution.

This could involve the use of advanced filtration systems or autonomous robots to remove plastic waste from the oceans, as well as the development of biodegradable plastics that break down more quickly in marine environments.

Conclusion:

Overall, the ecocentric approach emphasises the need for systemic change (fundamental changes in human behaviour and resource use) in order to reduce the amount of plastic waste entering the oceans and preserve marine ecosystems, while the technocentric approach focuses on developing new technologies to address the problem (allowing current rates of plastic use to continue).



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## The Environmental Movement

### Dynamics of Environmental Perspectives

- Environmental perspectives (and the beliefs they are built on) **shift** and **change** over time in all societies
- Although many different factors can cause these changes in perspectives, they are often **influenced** by government or non-governmental organisations (NGOs) campaigns or through social and demographic changes
  - For example, in the 1970s (and as early as the 1950s), there was a significant rise in **environmental awareness** due to campaigns against **pollution**
  - Government initiatives like the Clean Air Act in the UK (1956) and the establishment of the Environmental Protection Agency (EPA) in the US (1970) played important roles in highlighting pollution issues
  - NGOs like Greenpeace (1971) and Friends of the Earth (1969) also spearheaded campaigns, raising public awareness about the detrimental effects of pollution on health and the environment

### Interpretation of behaviour–time graphs

- Behaviour–time graphs illustrate how specific behaviours **change over time**
  - For example, a behaviour–time graph tracking smoking rates might show a decline over decades due to anti-smoking campaigns and general increased health awareness
    - The "Stoptober" campaign in the UK encourages smokers to quit during October, resulting in noticeable dips in smoking rates during those periods
- Other examples of using behaviour–time graphs include:
  - Littering tendencies
  - Water usage
  - Recycling rates
  - Use of renewable energy sources
  - Use of public transport
  - Consumption of meat
  - Shifts from traditional indigenous lifestyles to modern ones
    - For example, Indigenous groups are increasingly adopting Western clothing and technologies due to globalisation

- This transition can be seen in long-term studies that show changes in clothing styles, housing structures, personal belongings and food consumption patterns over time



### Examiner Tips and Tricks

You should familiarise yourself with interpreting behaviour-time graphs to identify **trends** and **perspective shifts** over time. Pay attention to the axes, labels, and units to understand the scale and significance of the changes shown.

## The Development of the Environmental Movement

- The environmental movement is the term used to describe humanity's **increasing awareness** of the damage we are causing to the environment and the importance of conserving the environmental health of our planet
- The movement includes a diverse range of individuals, organisations and initiatives united by a common goal: to address **urgent environmental challenges** such as climate change, pollution, habitat destruction and species extinction
- The movement promotes sustainable development, responsible resource management, conservation of biodiversity and the transition to cleaner, renewable energy sources
  - This can be achieved by implementing changes in **public policy** and encouraging changes in our **individual behaviours**
  - Through education, advocacy, activism and policy-making, the environmental movement aims to create a more sustainable and resilient future for both humanity and the natural world
- Various different factors, including people, books, films and historical events, have been key in the development of the environmental movement
- These **events** and **influences** have come from many different areas, including:
  - Individuals and environmental activists
  - Literature
  - Media
  - Major environmental disasters
  - International conferences and agreements
  - New technologies
  - Scientific discoveries



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### Individuals and Environmental Activists

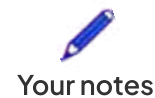


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Individual	Field	Description	Effect on Environmental Movement
Wangari Maathai	Conservation	Founded the Green Belt Movement, advocating for tree planting, conservation, and women's rights	Mobilised grassroots activism and promoted environmental conservation on a <b>local</b> and <b>global</b> scale
Greta Thunberg	Climate action	Led global <b>youth strikes for climate action</b> , raising awareness and challenging political leaders	Inspired millions worldwide to join climate activism, urging policymakers to take urgent climate action
Vandana Shiva	Environmentalism	Advocated for <b>sustainable agriculture and biodiversity conservation</b> , questioning corporate dominance	Raised awareness of the impacts of industrial agriculture and promoted <b>sustainable, community-based alternatives</b>
David Attenborough	Conservation	Renowned naturalist and broadcaster, raising awareness of environmental issues through <b>documentaries</b>	Educated and inspired audiences worldwide, fostering greater <b>appreciation</b> and <b>concern</b> for the natural world
Jane Goodall	Primatology	Pioneering primatologist, advocating for <b>wildlife conservation</b> and ethical treatment of animals	Advancing our understanding of animal behaviour and conservation, empowering individuals to <b>protect biodiversity and habitats</b>

### Literature

Author	Year	Work	Description	Effect on Environmental Movement
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Aldo Leopold	1949	A Sand County Almanac	Advocated for a land ethic, promoting <b>conservation</b> and <b>stewardship</b> of the natural world	Influential in shaping modern <b>conservation ethics</b> and inspiring environmental activism
Rachel Carson	1962	Silent Spring	Outlined the harmful effects of the pesticide DDT passing along food chains to top predators	Led to widespread concern about the dangers of pesticide use and increased awareness of <b>environmental pollution</b>
Donella Meadows, Dennis Meadows, Jørgen Randers, William W. Behrens III	1972	The Limits to Growth (LTG)	A report, commissioned by the Club of Rome (a global think tank), outlining the effects of a <b>rapidly increasing global population</b> on Earth's finite natural resources	Increased awareness of the dangers of <b>unsustainable natural resource</b> use (best-selling environmental publication in history)
James Lovelock	1979	Gaia	The first book to suggest that Earth is like a 'living organism' (a <b>self-regulatory system</b> that maintains its climate and biology)	Showed how humanity has the power to <b>upset</b> the <b>delicate balance</b> of the Earth's self-regulating processes, with potentially deadly consequences
Edward Abbey	1975	The Monkey Wrench Gang	Novel about eco-sabotage and resistance against environmental destruction, inspiring direct action	Influenced <b>environmental activism</b> by promoting radical tactics and raising awareness of conservation issues
Donella Meadows	1992	Beyond the Limits	Follow-up to "The Limits to Growth", exploring <b>strategies for achieving sustainable development</b>	Contributed to discussions on sustainability and influenced policy-making towards more <b>eco-friendly practices</b>

### Media

Media	Year	Description	Effect on Environmental Movement
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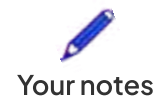
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An Inconvenient Truth	2006	A documentary film of former US Vice President Al Gore giving a lecture on <b>climate change</b> and its <b>consequences</b>	The film got extensive publicity, reaching a <b>huge worldwide audience</b> and triggering a major shift in public opinion in the <b>USA</b>
No Impact Man	2009	Documentary film following a family's attempt to live a <b>zero-waste</b> lifestyle in New York City	Raised awareness about <b>individual carbon footprints</b> and the potential for sustainable living in urban environments
Before the Flood	2016	Documentary featuring Leonardo DiCaprio exploring climate change impacts and solutions	Raised awareness of climate change issues and advocated for renewable energy and conservation efforts
Our Planet	2019	Netflix documentary series showcasing Earth's natural beauty and the impact of human activity	Raised awareness of environmental conservation and the need to <b>protect ecosystems</b> and <b>biodiversity</b>
Breaking Boundaries	2021	Netflix documentary on how humans are pushing Earth beyond the boundaries that have kept the planet <b>stable</b> for the last 10 000 years, narrated by David Attenborough	Highlighted pressing environmental issues and the importance of <b>global cooperation</b> for <b>sustainable solutions</b>

### Major Environmental Disasters

Event	Year	Description	Effect on Environmental Movement
Minamata disease in Minamata, Japan	1956	Chemical factories released toxic methyl mercury into waste water—mercury accumulation in fish and shellfish caused <b>mercury poisoning</b> in local people, with severe symptoms (neurological disorders, paralysis, death, or birth defects in newborns)	Raised awareness of the <b>risks of industrialisation</b> and the need for <b>environmental regulations</b> and checks to be imposed on industries





Industrial accident in Bhopal, India	1984	Explosion at a pesticide plant—released 42 tonnes of toxic methyl isocyanate gas, killing 10 000 people in the first 72 hours and 25 000 in total	Highlighted industrial risks and lack of safety measures, driving demands for <b>stricter regulations</b> and <b>corporate accountability</b>
Chernobyl nuclear meltdown, Soviet Ukraine	1986	Nuclear reactor exploded—radioactive fallout covered large areas of Ukraine, Belarus and Russia—336 000 people had to be evacuated and cancer incidence increased in surrounding area	Reinforced society's fear and negative perceptions surrounding nuclear power, strengthening calls for safer <b>energy alternatives</b> and stricter regulations on nuclear facilities
Fukushima nuclear meltdown, Japan	2011	Earthquake-generated tsunami hit nuclear power station and caused a meltdown in three of the six reactors—110 000 people evacuated	Intensified <b>global concerns</b> about <b>nuclear safety</b> and encouraged shifts towards <b>renewable energy sources</b> —however, Japan temporarily halted all nuclear power to carry out new safety checks, leading to increased dependence on fossil fuels

#### International Conferences and Agreements

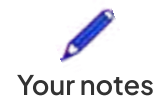
Event	Year	Description	Effect on Environmental Movement
Stockholm Declaration	1972	The first major United Nations (UN) conference on international environmental issues, held in Stockholm, led to this Declaration	Influential in setting <b>environmental targets</b> and shaping action at the <b>local</b> and <b>international</b> level
Rio Earth Summit	1992	UN Conference on Environment and Development, attended by 172 nations—outlined that <b>radical changes</b> in attitudes towards the environment needed to limit the damage to the planet	Had a global impact—led to the adoption of ' <b>Agenda 21</b> ' (a comprehensive action plan to ensure sustainable development) by over 178 parties



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Kyoto Protocol	1997	An international treaty building on the UN Framework Convention on Climate Change (UNFCCC) that committed state parties to <b>reduce greenhouse gas emissions</b>	192 parties committed to reducing their emissions of greenhouse gases such as <b>carbon dioxide</b> and <b>methane</b>
Rio+20	2012	UN Conference on Sustainable Development, marking the 20th anniversary of the Rio Earth Summit - aimed to secure <b>further political commitment</b> from nations to <b>sustainable development</b>	Helped to assess progress on various internationally agreed targets (e.g. reduction of greenhouse gas emissions) and <b>identify emerging environmental challenges</b>
Paris Agreement	2015	An international treaty agreed by 195 parties at COP21 - aimed to hold the increase in global average temperature to <b>below 2 °C above pre-industrial levels</b>	50% cut in greenhouse gas emissions needed by 2030—every country (including developing countries) agreed to <b>set targets</b> and <b>regularly report</b> on their progress
Glasgow Climate Pact	2021	At COP26, an international agreement between 197 countries was reached, which reaffirmed the Paris Agreement's global temperature goal	First climate deal to explicitly commit to <b>reducing coal use</b> —a late intervention from China and India weakened the pact's wording to " <b>phasing down</b> " coal (rather than phasing it <b>out</b> )
COP27	2022	The 27th United Nations Climate Change conference, held in Sharm El Sheikh, Egypt	Led to the creation of the first loss-and-damage fund and addressed measures to limit global temperature rise
COP28	2023	The 28th United Nations Climate Change conference, held in Expo City, Dubai, UAE	The final agreement made at this conference commits signatory countries to <b>move away from carbon energy sources</b> to mitigate climate change effects

### New Technologies



Development	Description	Effect on Environmental Movement
Green Revolution	Agricultural advancements increasing crop yields in the mid-20th century, addressing food scarcity	<b>Improved food security</b> and reduced pressure on natural habitats, but also raised concerns about the <b>environmental impacts of intensive farming practices</b>
Enteric fermentation control	Methods to decrease methane emissions from <b>livestock</b> , reducing agriculture's environmental footprint—strategies may include dietary adjustments, such as altering feed composition to <b>improve digestion efficiency</b> and reduce methane production, or supplementing diets with compounds that <b>inhibit methane-producing microorganisms</b>	Reduces greenhouse gas (methane) emissions from agriculture, mitigating the environmental impact of livestock and <b>lowering climate change impacts</b>
Plant-based meats	Innovations creating meat substitutes from plant sources, offering environmentally-friendly alternatives	Reduces demand for animal agriculture, mitigating deforestation, habitat loss and greenhouse gas emissions
Electric cars	Vehicles powered by electric motors instead of internal combustion engines, reducing reliance on fossil fuels and emissions of greenhouse gases	Lowers carbon emissions and air pollution, driving the <b>transition to sustainable transportation</b> and energy systems

### Scientific Discoveries

Discovery	Description	Effect on Environmental Movement
Pesticide and biocide toxicity	Studies revealing the harmful effects of pesticides and biocides on <b>ecosystems</b> and <b>human health</b>	Increased awareness of environmental risks, leading to regulatory measures, pesticide bans, and adoption of alternative pest control methods
Species loss	Research documenting the <b>rapid decline</b> of <b>species diversity globally</b>	Raised alarm about biodiversity loss and the <b>extinction crisis</b> , driving conservation efforts



Your notes

	due to <b>human activities</b>	and policy actions to protect ecosystems and species
Habitat degradation	Investigations highlighting the <b>destruction</b> and <b>fragmentation</b> of natural habitats worldwide	Highlighted the urgent need for habitat conservation and restoration, leading to the establishment of <b>protected areas</b> and <b>restoration</b> initiatives
Ocean acidification	Phenomenon of <b>decreasing pH</b> levels in the Earth's oceans, mainly due to <b>increased carbon dioxide emissions</b>	Raised concerns about marine ecosystem health and biodiversity, driving research and policy actions to address ocean acidification impacts
Climate change impacts	Research documenting the diverse effects of climate change on <b>ecosystems, economies</b> and human <b>societies</b>	Increased understanding of climate change risks and vulnerabilities, motivating adaptation and mitigation efforts to address its impacts



### Examiner Tips and Tricks

You don't need to learn how **ALL** of these people and events have contributed to the development of the environmental movement! It might be a good idea to select at least one from each of the tables above, then learn what happened and make sure you can explain why each one was important in shaping the environmental movement.