

Topic 9.3: Technological Advances — Debates About the Environment After 1900

Standards Table

Theme	Learning Objective	Key Concept(s)	Education Standards Met
Humans and the Environment (ENV)	Explain the causes and effects of environmental changes from 1900 to present.	KC-6.1.II.A, KC-6.1.II.B	AP World History: causation, continuity/change, argument development

Learning Objectives

- Explain how human activity caused environmental change after 1900
- Analyze how industrialization and technology impacted natural resources
- Evaluate the effects of environmental degradation on societies
- Explain how environmental issues led to global debates and policy responses
- Use historical evidence to support causal arguments

Lesson Overview

After 1900, technological advances dramatically increased human impact on the environment. Industrialization, population growth, and increased consumption led to deforestation, pollution, and depletion of natural resources. At the same time, new scientific understanding of environmental damage sparked global debates about climate change and sustainability. These developments highlight the complex relationship between human progress and environmental consequences, as technological innovation created both benefits and significant challenges.

Essential Vocabulary

- **deforestation** — large-scale removal of forests
- **desertification** — transformation of fertile land into desert
- **greenhouse gases** — gases that trap heat in the atmosphere
- **climate change** — long-term changes in global climate patterns
- **sustainability** — use of resources without depleting them

Background Reading

Technological and industrial expansion after 1900 significantly increased human impact on the environment. The use of fossil fuels such as coal and oil powered economic growth but also contributed to air pollution and greenhouse gas emissions. Industrial production and urbanization led to deforestation and the depletion of natural resources, particularly in regions experiencing rapid development.

As populations grew, demand for resources such as water, food, and energy increased. Agricultural expansion, including the Green Revolution, improved food production but also contributed to soil degradation and increased use of chemical fertilizers. In many regions, overuse of land and water resources led to desertification and declining agricultural productivity.

Environmental changes also led to increased competition over resources. Conflicts over water, land, and energy became more common as nations and communities sought to secure access to limited resources. These tensions highlighted the connection between environmental issues and political and economic stability.

At the same time, scientific research and environmental activism brought attention to the long-term consequences of human activity. The release of greenhouse gases became a central issue in global debates about climate change. Governments, scientists, and activists disagreed about the causes, severity, and solutions to environmental problems, leading to ongoing international discussions about sustainability and environmental protection.

Primary Sources

Primary Source 1: Rachel Carson, *Silent Spring* (1962)

<https://www.nrdc.org/stories/rachel-carsons-silent-spring>

For the first time in the history of the world, every human being is now subjected to contact with dangerous chemicals... These chemicals are stored in the bodies of the vast majority of human beings, regardless of age.

The contamination of the environment with harmful substances has created new risks that extend beyond individual exposure. These chemicals accumulate in ecosystems, affecting not only humans but also animals and plant life.

This situation raises serious questions about the consequences of technological progress and the responsibility of society to protect the natural world.

Questions

1. Identify ONE claim Carson makes about technology and the environment.
2. Explain ONE cause of environmental harm described in the document.
3. Analyze Carson's point of view as a scientist and environmental writer.
4. Explain ONE effect of environmental damage mentioned or implied.
5. Connect this document to broader environmental debates after 1900.

Primary Source 2: United Nations Conference on the Environment (Stockholm Declaration, 1972)

<https://www.un.org/en/conferences/environment/stockholm1972>

Man has the fundamental right to freedom, equality, and adequate conditions of life in an environment of a quality that permits a life of dignity and well-being.

The protection and improvement of the human environment is a major issue that affects the well-being of peoples and economic development throughout the world.

Both natural and man-made aspects of the environment are essential to human survival and must be safeguarded for present and future generations.

Questions

1. Identify ONE goal of the Stockholm Declaration.
2. Explain ONE reason environmental protection became a global issue.
3. Analyze the purpose of this document.
4. Explain how this reflects international cooperation.
5. Compare this perspective with Carson's.

Primary Source 3: Intergovernmental Panel on Climate Change (IPCC Report Excerpt, 1990)

<https://www.ipcc.ch/report/ar1/>

Human activities are increasing atmospheric concentrations of greenhouse gases, resulting in warming of the Earth's surface.

This warming is expected to lead to changes in climate patterns, including shifts in precipitation and temperature.

These changes may have significant impacts on ecosystems, agriculture, and human societies.

Questions

1. Identify ONE cause of climate change described in the document.
2. Explain ONE predicted effect of climate change.
3. Analyze the purpose of the IPCC report.

4. Explain how this reflects scientific developments.
5. Connect this to global policy debates.

Key Tables

Causes of Environmental Change

Cause	Example
Industrialization	Air pollution
Agriculture	Soil degradation
Population growth	Resource depletion
Fossil fuels	Climate change

Effects

Effect	Example
Environmental damage	Deforestation
Resource conflict	Water disputes
Health issues	Pollution-related illness
Global debate	Climate agreements

Change / Continuity / Comparison

Change over time:

After 1900, environmental damage increased significantly due to industrialization and population growth. New scientific understanding led to global awareness and policy debates.

Continuity over time:

Humans have always impacted the environment, but the scale and intensity increased dramatically in the modern era.

Comparison:

Developed nations contributed more to pollution, while developing nations often experienced more severe environmental consequences.

Key Takeaways

- Technology increased environmental impact
- Industrialization caused pollution and resource depletion
- Environmental issues led to global debates
- Scientific research shaped understanding of climate change
- Environmental effects were unevenly distributed