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# CERTIFIED SUSTAINABLE DEVELOPMENT PROFESSIONAL - CSDP OVERVIEW

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MODULE  
**5A**

# Environmental Issues Associated with Sustainable Development

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# **CERTIFIED SUSTAINABLE DEVELOPMENT PROFESSIONAL CSDP OVERVIEW**

Sustainable development aims to meet present needs without compromising future generations' ability to meet their own needs. However, this concept can lead to environmental issues such as resource depletion, biodiversity loss, climate change, pollution, and waste management. Resource depletion is a major challenge, as natural resources like water, minerals, and forests are finite.

# Learning Objectives

- Introduction
- Getting Started with CSDP
- What is Sustainable Development?
- Sustainable Development: Definitions & Applications
- **Environmental Issues Associated with Sustainable Development**
- Alternative Energy & Carbon Reduction
- Certified Sustainable Development Specialist Certification
- Summary and Resources
- CSDP Practice Test V.4.1\_Test Your Knowledge!



# INTRODUCTION

## Key Environmental Issues:

- Resource Depletion: Sustainable development aims to meet present needs without compromising future generations' ability to meet their own needs.
- Biodiversity Loss: Sustainable development can lead to habitat destruction, threatening biodiversity.
- Climate Change: Human activities, particularly burning fossil fuels, release greenhouse gases like carbon dioxide into the atmosphere, causing extreme weather events, rising sea levels, and shifting ecosystems.
- Pollution: Industrial processes, transportation, and agriculture can release harmful substances into the air, water, and soil, causing long-term environmental issues.
- Waste Management: As populations grow and consumption increases, landfills overflow, and many materials are not biodegradable, leading to long-term environmental issues.

# STRATEGIES FOR SUSTAINABLE DEVELOPMENT

- Transitioning to renewable energy sources: This reduces greenhouse gas emissions and combats climate change.
- Sustainable Agriculture: Practices like crop rotation and organic farming maintain soil health and reduce the need for harmful pesticides and fertilizers.
- Conservation Efforts: Protecting natural habitats through conservation programs helps preserve biodiversity and ecosystems.
- Circular Economy: Focusing on reusing materials and minimizing waste creates a cycle where resources are kept in use for as long as possible.





## SUSTAINABLE DEVELOPMENT: THE ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

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- The environment encompasses all living organisms, including humans, providing essential resources like food, water, shelter, and clean air.
- Human activities have significantly impacted the environment, leading to pollution, deforestation, and climate change.
- Sustainable development aims to balance economic growth, social progress, and environmental protection, ensuring resource use wisely and environmental preservation for future generations.
- Renewable energy sources like solar and wind power are examples of sustainable development, reducing reliance on fossil fuels and contributing to air pollution and climate change.
- Sustainable agriculture practices, including crop rotation, organic farming, and natural fertilizers, protect soil, water, and biodiversity while providing food for the growing population.
- Understanding the importance of preserving the environment and implementing sustainable practices is crucial for a healthy planet for future

# WASTE MANAGEMENT



- Waste management is crucial for environmental protection and sustainability.
- It involves collection, transportation, processing, and disposal of waste materials to minimize environmental and health impacts.
- The waste hierarchy prioritizes waste management strategies based on their environmental impact.
- The hierarchy consists of five levels: prevention, minimization, reuse, recycling, and disposal.
- Prevention reduces waste generation at the source through better product design, production processes, and consumer behavior.
- Minimization reduces waste through practices like source reduction, material substitution, and process modifications.
- Reuse involves finding new uses for discarded materials or products.
- Recycling collects and processes materials to create new products, conserving resources, reducing energy consumption, and reducing greenhouse gas emissions.
- Disposal involves the final disposal of waste materials that cannot be prevented, minimized, reused, or recycled.

# THE ASSAULT ON FRESH WATER RESOURCES

- Over-extraction: Rapid depletion of freshwater reserves due to population growth and increased water demands. This leads to groundwater depletion, reduced river flows, and drying up of lakes and wetlands.
- Pollution: Industrial activities, agricultural runoff, and urbanization contaminate rivers, lakes, and groundwater with pollutants. This harms aquatic ecosystems and biodiversity.
- Climate Change: Changing precipitation patterns, rising temperatures, and frequent extreme weather events are leading to water scarcity.
- Sustainable Water Management Practices: Promoting water conservation, improving water efficiency, investing in water infrastructure, and protecting freshwater ecosystems.



# AIR QUALITY



- Air quality directly impacts human and environmental health, leading to respiratory problems, cardiovascular issues, and ecosystem damage.
- Ozone depletion, caused by the release of chemicals like chlorofluorocarbons (CFCs), is a key issue. CFCs break down ozone molecules, thinning the ozone layer.
- Increase in greenhouse gases like carbon dioxide and methane contribute to global warming and climate change. Burning fossil fuels releases carbon dioxide into the atmosphere.
- Human activities like vehicle emissions, industrial processes, and agriculture release pollutants like nitrogen oxides, sulfur dioxide, and particulate matter into the air.
- Natural events like wildfires and volcanic eruptions also contribute to air pollution.
- Maintaining good air quality is crucial for long-term sustainability, reducing emissions and protecting the ozone layer.

# CLIMATE CHANGE

- Climate change refers to long-term changes in Earth's climate system, driven by human activities like burning fossil fuels, deforestation, and industrial processes.
- Greenhouse gases trap heat in the Earth's atmosphere, leading to the greenhouse effect.
- The current rate of climate change is unprecedented, largely due to human activities increasing greenhouse gas concentration since the Industrial Revolution.
- Global warming, the increase in Earth's average surface temperature, has led to melting of polar ice caps, rising sea levels, more severe heatwaves, and changes in precipitation patterns.
- Climate change exacerbates extreme weather events like hurricanes, droughts, and wildfires, causing devastating consequences for human health, agriculture, and infrastructure.
- Climate change can also have indirect effects on ecosystems and biodiversity, leading to shifts in species distributions, loss of habitat, and increased risk of extinction.
- Addressing climate change requires a coordinated global effort to reduce greenhouse gas emissions, transition to renewable energy sources, and adapt to the changing climate.





# THE KYOTO PROTOCOL

- An international agreement aimed at reducing greenhouse gas emissions.
- Adopted in December 1997 and entered into force in February 2005.
- Negotiated under the United Nations Framework Convention on Climate Change (UNFCCC).
- Establishes legally binding emission reduction targets for industrialized countries.
- Countries can implement domestic policies, increase renewable energy use, and implement carbon pricing mechanisms.
- Allows countries to participate in emissions trading for cost-effective emission reduction.
- Includes Clean Development Mechanism (CDM) and Joint Implementation (JI) for developed countries to offset their own emissions.
- Has faced criticisms for not including major emitters and for some countries struggling to meet their targets.
- Despite limitations, the Kyoto Protocol has raised awareness about reducing emissions and paved the way for more ambitious climate agreements.



# THE PARIS AGREEMENT | UNFCCC

## Paris Agreement:

- Adopted in 2015, builds upon the principles of the UNFCCC.
- Aims to limit global temperature rise to well below 2 degrees Celsius above pre-industrial levels, with efforts to limit the increase to 1.5 degrees Celsius.
- Enhances countries' ability to adapt to climate change impacts and make financial flows consistent with low greenhouse gas emissions and climate-resilient development.

## Key Features of the Paris Agreement:

- Concept of nationally determined contributions (NDCs).
- Transparency framework promoting accountability and trust among countries.





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