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Environmental Studies-II

BSCITRVA-207

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Environmental Studies – II

Dr. Babasaheb Ambedkar Open University

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Environmental Studies – II

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1.1 LEARNING OBJECTIVES

After successful completion of this unit, you will be able to –

- Understand and explain importance of environmental education
- Describe environmental policy
- Explain state of India's policy with respect to different aspects

1.2 INTRODUCTION

Environmental education is a multifaceted and transformative field that seeks to empower individuals with the knowledge, skills, values, and attitudes necessary to understand, appreciate, and protect the environment. It is an educational approach that addresses the complex and interrelated challenges facing our planet, from climate change to biodiversity loss, and equips individuals to become responsible and informed stewards of the Earth. In this introduction, we will explore the core concepts, significance, objectives, and approaches that underpin environmental education.

Environmental education goes beyond traditional classroom learning. It is a holistic and lifelong process that transcends boundaries, encompassing formal and informal education, community engagement, and practical experiences. At its core, environmental education aims to cultivate environmental literacy, which is the ability to comprehend the intricate relationships between human activities, ecosystems, and the biosphere..

Environmental education is of paramount significance in our rapidly changing world, where the challenges of environmental degradation, resource depletion, and climate change demand immediate attention and action. Here's why it is vital:

- **Awareness and Understanding**: Environmental education raises awareness about the environment and fosters a deep understanding of ecological systems and the consequences of human actions.
- **Sustainability:** It promotes sustainability by imparting the principles of responsible resource use, conservation, and the pursuit of a balanced and equitable future.
- **Empowermen**t: Environmental education empowers individuals to take informed actions, advocate for positive change, and make sustainable choices in their personal and professional lives.

- **Informed Citizenship**: It prepares individuals to be informed and active citizens who can participate in environmental policy discussions, advocate for effective regulations, and hold decision-makers accountable.
- **Biodiversity Conservation**: Environmental education underscores the importance of biodiversity and conservation, emphasizing the need to protect ecosystems and endangered species.
- **Critical Thinking**: It fosters critical thinking, allowing individuals to evaluate complex environmental issues and make sound decisions based on evidence and data.

1.3 DEFINITION AND BACKGROUND OF ENVIRONMENTAL EDUCATION

1.3.1 Definition of Environmental Education

1. "Environmental education is a process that helps individuals understand, appreciate, and develop a sense of responsibility toward the environment. It encompasses both formal and informal educational experiences that increase awareness, knowledge, and skills, leading to informed environmental decision-making."

– Aldo Leopold, a renowned American ecologist and author of "A Sand County Almanac."

2. "Environmental education is the process of acquiring knowledge and understanding, developing attitudes, and gaining skills that enable individuals to comprehend and appreciate the environment, its interrelatedness, and the need for its conservation."

– Rachel Carson, a marine biologist and author of "Silent Spring."

3. "Environmental education is a lifelong learning process that enables individuals to explore environmental issues, engage in problem-solving, and take action to improve the environment. It is about promoting critical thinking, ethical responsibility, and an understanding of the interconnectedness of all life."

– Charles Saylan and Daniel T. Blumstein, authors of "The Failure of Environmental Education(And How We Can Fix It)."

4. "Environmental education is the process of recognizing our interdependence with the rest of the living world, understanding the consequences of our actions, and acting with responsibility, integrity, and love."

– David W. Orr, an environmental educator and author of "Earth in Mind: On Education, Environment, and the Human Prospect."

5. "Environmental education is a continuous process based on awareness and concern about the environment and human interactions with it. It strives to impart knowledge, develop attitudes, and sharpen skills necessary to understand and solve environmental problems."

– The Tbilisi Declaration, a landmark document in the field of environmental education, adopted at the Intergovernmental Conference on Environmental Education in Tbilisi, Georgia, in 1977.

6. "Environmental education is a process that allows individuals to explore environmental issues, engage in problem-solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions."

– Author: U.S. Environmental Protection Agency (EPA)

7. "Environmental education is a lifelong learning process that encourages exploration, investigation, and discovery about the environment, its challenges, and solutions. It empowers learners to make informed decisions and take responsible actions to improve and sustain the environment."

– Author: North American Association for Environmental Education (NAAEE)

8. "Environmental education is an interdisciplinary field that integrates knowledge from natural and social sciences, focusing on the relationships between humans and the environment. It aims to raise awareness, build knowledge, and instill a sense of environmental responsibility."

– Author: William B. Stapp in "Environmental Education: An Annotated Bibliography" (1969)

9 ."Environmental education is a dynamic process that equips individuals with the understanding, skills, and motivation to work collaboratively toward solving current environmental challenges and preventing new ones."

– Author: UNESCO (United Nations Educational, Scientific and Cultural Organization)

1.3.2 BACKGROUND OF ENVIROMENTAL EDUCATION

Environmental education has its roots in the recognition of the need to address environmental issues, foster a sense of environmental responsibility, and prepare individuals to be informed and active stewards of the planet.

This comprehensive background provides insights into the evolution of environmental education, its historical context, key milestones, and its significance in addressing pressing environmental challenges. From early conservation efforts to the development of formal environmental education programs, this narrative traces the journey of a field that has become integral to our understanding of and response to the environmental issues of our time.

Early Conservation Efforts: The origins of environmental education can be traced back to the late 19th and early 20th centuries when individuals and organizations started recognizing the need to protect natural resources and preserve the environment

The conservation movement in the United States, led by figures like John Muir, Gifford Pinchot, and Theodore Roosevelt, played a pivotal role in laying the foundation for environmental awareness and advocacy.

John Muir, the founder of the Sierra Club, was a prominent voice for the protection of wilderness areas and played a crucial role in the establishment of national parks. Gifford Pinchot, the first chief of the United States Forest Service, promoted the concept of sustainable resource management, highlighting the need for responsible use of natural resources. The advocacy of these early conservationists set the stage for a growing awareness of the value of nature and the need for its preservation.

Rachel Carson and the Environmental Awakening:

The 1960s brought a profound shift in public consciousness about the environment, largely catalyzed by the work of Rachel Carson. Her groundbreaking book, "Silent Spring," published in 1962, drew attention to the detrimental effects of widespread pesticide use, particularly DDT, on ecosystems and human health. Carson's work is often credited with launching the modern

environmental movement. "Silent Spring" highlighted the potential consequences of unchecked chemical pollution on the environment, resonating with the public and prompting widespread concern. The book led to the ban of DDT in the United States and spurred discussions about the environmental impact of human activities. Rachel Carson's eloquent and scientifically grounded writing had a profound impact, not only on public opinion but also on policy and regulatory changes.

The First Earth Day:

"The momentum created by Rachel Carson's work culminated in the first Earth Day, which took place on April 22, 1970. The event was a massive demonstration of public concern for the environment, with millions of people participating in rallies, educational programs, and environmental activities. Earth Day served as a catalyst for environmental education and awareness, mobilizing individuals and communities to take action."

The success of the first Earth Day led to the creation of the Environmental Protection Agency (EPA) in the United States, further emphasizing the importance of addressing environmental issues at a national level. The EPA was tasked with regulating and enforcing environmental laws and policies, ensuring that the government played a central role in environmental protection.

International Initiatives:

In parallel to these developments in the United States, international efforts were underway to address global environmental issues. The United Nations Environmental Programme (UNEP) was established in 1972 following the United Nations Conference on the Human Environment in Stockholm. This marked a significant step in recognizing the need for international cooperation in addressing environmental challenges.

One of the notable outcomes of the Stockholm Conference was the formulation of the Declaration of the United Nations Conference on the Human Environment, often referred to as the Stockholm Declaration. This document emphasized the fundamental right to an environment of quality that permits a life of dignity and well-being and underscored the responsibility of governments and organizations to protect and improve the environment.

The Tbilisi Declaration, adopted at the Intergovernmental Conference on Environmental Education in 1977 in Tbilisi, Georgia, further formalized the goals and principles of environmental education. It highlighted the importance of education in addressing environmental challenges and nurturing a sense of environmental responsibility. The Tbilisi Declaration marked a critical moment in the international recognition of environmental education as a means to promote sustainability.

Evolution of Environmental Education: Environmental education continued to evolve and gain prominence as a field in its own right. It expanded beyond advocacy and awareness-building to encompass a broader educational approach. The principles of environmental education began to be integrated into formal education systems, curricula, and pedagogical practices.

Several key milestones contributed to this evolution:

- **The Belgrade Charter (1975):** The Belgrade Charter affirmed the role of environmental education in promoting environmental literacy and emphasizing the need for interdisciplinary approaches.
- **The Brundtland Report (1987):** The publication of the report "Our Common Future" by the World Commission on Environment and Development, chaired by Gro Harlem Brundtland, defined the concept of sustainable development. It highlighted the interdependence of environmental, social ,and economic issues and called for a more holistic approach to development.

- **The Earth Summit (1992):** The United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit, held in Rio de Janeiro, Brazil, resulted in the Rio Declaration On Environment and Development. This event Further emphasized the need for sustainable development and integrated environmental education into the broader sustainability agenda.
- **The United Nations Decade of Education for Sustainable Development(2005-2014):** This initiative aimed to integrate the Principles and practices of sustainable development into all aspects of education. It underscored the role of education, including environmental education, in achieving sustainability goals.

Key Concepts in Environmental Education:

Several key concepts and principles underpin environmental education:

- **Interdisciplinary:** Environmental education integrates knowledge from various fields, recognizing that environmental issues are complex and interconnected. It emphasizes the need to approach these issues from multiple perspectives.
- **Interdisciplinary:** Environmental education integrates knowledge from various fields, recognizing that environmental issues are complex and interconnected. It emphasizes the need to approach these issues from multiple perspectives.
- **Experiential Learning**: Learning is enhanced through direct experiences, Field trips, hands-on activities, and outdoor education, which promote a deeper connection to the environment.
- **Action and Civic Engagement:** Environmental education encourages individuals to take informed actions, engage in civic life, and advocate for environmental protection. It empowers them to participate in decision-making processes.

- **Critical Thinking**: Environmental education fosters critical thinking, problem-solving, and the development of analytical skills to assess complex environmental challenges.
- Local Relevance: It often emphasizes local and regional environmental Issues, making the content meaningful and relatable to the learners' context.
- **Sustainability and Stewardship**: Environmental education promotes sustainability, emphasizing the responsible use of r7esources and the role of individuals as stewards of the environment

Environmental Education Today:

Environmental education has continued to evolve, adapting to the changing needs and challenges of society. Today, it is an integral part of formal education systems, from primary schools to universities, and is also delivered through various non-formal and informal channels. It addresses a wide range of environmental issues, including climate change, biodiversity conservation, sustainable agriculture, waste management, and more. Environmental education programs encompass a broad spectrum of activities, from classroom lessons and field trips to community-based projects and advocacy efforts. The digital age has also transformed environmental education, with online resources, interactive tools, and virtual experiences making it more accessible and engaging. These technological advancements have extended the reach of environmental education to a global audience. Environmental education has come a long way from its early conservation roots to becoming a central force in addressing environmental challenges.

Today, environmental education is more important than ever. It equips individuals with the knowledge, skills, values, and attitudes needed to navigate the complex and interconnected environmental issues of our time. It fosters a sense of environmental responsibility and empowers individuals to take Informed actions, advocate for positive change,

and contribute to a more sustainable and resilient future for our planet. As the world grapples with pressing environmental challenges, environmental education stands as a beacon of hope, guiding us toward a better and more sustainable future.

CHECK YOUR PROGRESS

Q: Who is often credited with launching the modern environmental movement with her influential book, "Silent Spring"?

A) John Muir

B) Gifford Pinchot

C) Theodore Roosevelt

D) Rachel Carson

Q: The first Earth Day in 1970 marked a significant moment in the

environmental education movement. What was its primary purpose?

A) Celebrating nature and biodiversity

B) Mobilizing public concern for the environment

C) Promoting political divisions

D) Launching the Environmental Protection Agency (EPA)

Q: What was the outcome of the United Nations Conference on the Human

Environment in Stockholm in 1972 ?

A) Creation of the United Nations Environmental Programme (UNEP)

B) Declaration of the first International Year of Environmental Education

C) Founding of the World Wildlife Fund (WWF)

D) Adoption of the Tbilisi Declaration

Q: Which of the following best describes the concept of "sustainable development" as introduced in the Brundtland Report?

A) An approach that prioritizes economic growth at the expense of the environment.

B) The notion that development should meet the needs of the present without compromising the ability of future generations to meet their own needs.

C) A focus on advancing social equity exclusively, without considering environmental impacts.

D) A call for rapid and unchecked industrialization.

Q: What key principles underpin environmental education?

A) Specialization and isolation from other fields

B) Political activism and advocacy only

C) Interdisciplinary, critical thinking, and local relevance

D) Preservation of natural resources without human involvement

Q: Define environmental education and explain its significance in today's world.

Q: Discuss the historical background of environmental education. Highlight key milestones and individuals who played significant roles in its development.

Q: Describe the principles and key concepts that underpin environmental education. Provide examples of how these principles are applied in practice.

Q: How has environmental education evolved over time, and what are its current trends and challenges in the 21st century?

Q: Explain the role of environmental education in promoting informed citizenship and addressing global environmental challenges.

1.4 NEED OF ENVIRONMENTAL EDUCATION

Environmental education is an imperative response to the growing environmental challenges and crises that humanity faces. It is a multifaceted approach that seeks to address the critical need for raising awareness, fostering understanding,

And inspiring responsible action regarding the environment. In this comprehensive discussion, we will explore the pressing need for environmental education in today's world, delving into the environmental problems we confront, the role of environmental education in addressing these challenges, and the broader societal, ecological, and economic significance of investing in environmental

The State of Our Environment: Challenges and Crises:

The world we inhabit is confronted with a multitude of environmental challenges and crises that have wide-ranging and often interconnected consequences .These challenges underscore the urgent need for environmental education.

1. **Climate Change**: One of the most formidable and pervasive Challenges of our time ,climate change is driven by human activities, Primarily the emission of greenhouse gases. It results in rising global temperatures
   sea-level rise, extreme weather events, and disruptions to ecosystems and livelihoods.
2. **Biodiversity Loss**: The loss of biodiversity due to habitat destruction, pollution, overexploitation, and invasive species is a pressing concern. Biodiversity is fundamental to the health and stability of ecosystems and The provision of ecosystem services.
3. **Pollution:** Pollution in various forms, including air pollution, water pollution,and plastic pollution, poses a significant threat to human and environmental health. Pollutants contaminate the air we breathe, the water we drink, and the ecosystems that sustain life.
4. **Resource Depletion:** Unsustainable consumption and the over exploitation of natural resources, such as freshwater, forests, and fisheries, lead to resource depletion, jeopardizing our ability to meet current and future needs.

5. **Deforestation:** The clearance of forests for agriculture, urbanization, And timber extraction contributes to habitat loss, carbon emissions, and Disruption of the water cycle.

6. **Land Degradation:** Land degradation through activities like desertification, soil erosion, and salinization reduces the productivity of agricultural lands, impacting food security.

7. **Plastic Waste:** The proliferation of single-use plastics has led to a Global plastic waste crisis, affecting marine ecosystems and wildlife.

8. **Water Scarcity**: Increasing demands on freshwater resources, coupled With pollution and mismanagement, result in water scarcity in many regions, affecting billions of people.

9. **Environmental Injustice:** Environmental problems disproportionately impact vulnerable and marginalized communities, exacerbating existing social inequalities.

The Role of Environmental Education

In this landscape of environmental challenges and crises, environmental education emerges as a critical tool for addressing these issues effectively. It is essential for several reasons:

1. **Raising Awareness:** Environmental education raises public awareness about the state of the environment and the severity of the challenges we face. It informs individuals about the consequences of environmental degradation, making them more conscious of their actions.

2. **Fostering Understanding:** Environmental education provides the knowledge and understanding needed to grasp the complexity of environmental issues.

It helps individuals appreciate the interconnectedness of ecosystems and the impact of human activities.

3. **Empowering Action:** One of the central goals of environmental education is to empower individuals to take informed and responsible actions. It equips them with the skills and tools to make sustainable choices in their personal and professional lives.

4. **Cultivating Stewardship:** Environmental education fosters a sense of environmental stewardship, encouraging individuals to take ownership of their roles as responsible custodians of the environment. This stewardship is vital for the conservation of natural resources and the protection of ecosystems.

5. **Promoting Sustainability:** Sustainability, which is at the core of environmental education, is the key to ensuring that we meet our present needs without compromising the ability of future generations to meet their own needs. Environmental education imparts the principles of sustainable living and responsible resource use.

6. **Encouraging Informed Citizenship:** Environmental education prepares individuals to be informed and engaged citizens who can participate in environmental policy discussions, advocate for positive change, and hold decision-makers accountable. Informed citizenship is essential for effective democratic governance

7. **Driving Innovation**: Environmental education encourages innovation and problem-solving. It motivates individuals to find creative solutions to environmental challenges, fostering a culture of entrepreneurship and sustainability.

8. **Addressing Environmental Injustice:** Environmental education can help rectify environmental injustices by empowering marginalized communities with knowledge and advocacy tools to fight against discriminatory environmental practices and policies.

The Societal Significance of Environmental Education

Beyond addressing immediate environmental issues, environmental education holds immense societal significance. Here are several ways in which it contributes to the betterment of society:

1. **Public Health:** Environmental education plays a vital role in improving public health. By informing individuals about the health risks associated with pollution, chemical exposure, and climate-related illnesses, it encourages healthier choices and behaviors.

2. **Economic Resilience:** Environmental education is closely linked to economic resilience. It prepares individuals and communities for the challenges posed by a changing environment, fostering adaptation and innovation.

3. **Quality of Life:** A deeper understanding of the environment and sustainability enhances the quality of life. It encourages individuals to connect with nature, practice mindfulness, and adopt lifestyles that prioritize well-being.

4. **Community Building:** Environmental education often involves community- based initiatives, fostering collaboration and social cohesion. It brings people together to work toward common environmental goals.

5. **Cultural Preservation:** Indigenous and traditional knowledge about the environment is often a key component of environmental education. This preserves cultural heritage and traditional practices, safeguarding the diversity of cultural expressions.

The Ecological Significance of Environmental Education: Environmental education is not just about human society; it also has significant ecological importance. Here's how it contributes to ecological well-being:

1. **Conservation of Biodiversity:** Environmental education instills a sense of responsibility for biodiversity. It raises awareness about the importance of preserving species and ecosystems and supports conservation efforts.

2. **Ecosystem Health:** Informed actions stemming from environmental education contribute to the health of ecosystems. By reducing pollution, habitat destruction, and resource exploitation, it helps ecosystems thrive.

3. **Ecological Restoration:** Environmental education often Involves ecological restoration projects. It educates individuals about the value of restoring damaged ecosystems, promoting habitat rehabilitation.

4. **Sustainable Land Use:** It encourages sustainable land use practices, preventing land degradation and promoting the restoration of degraded lands.

5. **Climate Resilience:** Environmental education equips communities with the

   knowledge and tools to adapt to and mitigate the effects of climate change, contributing to ecological resilience.

The Economic Significance of Environmental Education

Environmental education also has economic implications. It can contribute to economic well-being in the following ways:

1. **Green Job Opportunities:** Environmental education fosters a workforce with the skills and knowledge to participate in the green economy. It leads to job creation in sectors such as renewable energy, sustainable agriculture, and environmental consulting.

2. **Resource Efficiency:** By promoting resource efficiency and waste reduction, environmental education can lead to cost savings for businesses and industries..

3. **Risk Mitigation:** Preparedness for environmental risks, such as natural disasters and resource scarcity, reduces economic vulnerability.

4. **Innovation:** Environmental education drives innovation and entrepreneurship, leading to the development of sustainable technologies and solutions.

The Educational Significance of Environmental Education

Environmental education is fundamentally an educational endeavor. Its significance in the realm of education is profound:

1. **Holistic Learning:** Environmental education encourages holistic learning by incorporating knowledge from various disciplines, fostering a we ll-rounded education.

2. **Critical Thinking**: It promotes critical thinking and problem-solving, essential skills for addressing complex environmental challenges

3 Hands-On Learning: Environmental education often involves experiential learning, which is proven to be highly effective in enhancing understanding and retention of information.

4 **Global Citizenship:** It prepares individuals to be global citizens, fostering an understanding of our interconnected world.

5. **Lifelong Learning:** Environmental education is a lifelong learning process, encouraging individuals to continue their environmental education beyond formal education.

The Path Forward

The need for environmental education is clear and pressing. It is not only a response to the environmental challenges we face but also a catalyst for positive change. To meet this need effectively, various stakeholders must work in tandem:

1. **Educational Institutions:** Schools, colleges, and universities should integrate environmental education into their curricula and promote a culture of sustainability on their campuses.

2. **Government:** Governments must support and fund environmental education programs, enact policies that promote sustainability, and develop regulations that protect the environment.
3. **Non-Governmental Organizations:** Environmental and educational organizations play a crucial role in promoting environmental education, developing resources, and conducting outreach.

1. **Communities:** Local communities can initiate environmental education initiatives, organize clean-up events, and engage with schools to promote environmental awareness.

2. **Individuals:** Each person has a role to play by educating themselves about environmental issues, making sustainable choices, and advocating for responsible environmental practices.

Environmental education is an essential response to the urgent environmental challenges and crises we face. It has societal, ecological, and economic significance, and its role in fostering informed citizenship, promoting sustainability, and addressing environmental problems is paramount. To secure a sustainable and resilient future for our planet, investing in environmental education is not just a choice; it is a necessity.

CHECK YOUR PROGRESS

Q: Which objective of environmental education encourages individuals to find creative solutions to environmental challenges?

A) Raising environmental awareness

B) Fostering environmental understanding

C) Promoting responsible environmental action

D) Driving innovation and problem-solving

Q: How does environmental education contribute to addressing environmental injustices?

A) By promoting discriminatory environmental practices.

B) By empowering marginalized communities with knowledge and advocacy tools.

C) By ignoring social inequalities.

D) By exacerbating existing disparities**.**

Q: Which United Nations Sustainable Development Goal emphasizes the need to reduce inequalities within and among countries, aligning with the objective of addressing environmental injustice?

A) SDG 6: Clean Water and Sanitation

B) SDG 8: Decent Work and Economic Growth

C) SDG 10: Reduced Inequalities

D) SDG 16: Peace, Justice, and Strong Institutions

Q: What is the ultimate goal of environmental education?

A) To emphasize indifference toward environmental challenges.
B) To foster a deeper understanding of environmental issues.
C) To promote responsible actions and stewardship.
D) To preserve the status quo regarding the environment.

Q: Discuss the significance of raising environmental awareness as an objective of environmental education. How does it contribute to addressing environmental challenges?

Q: Explain the role of environmental education in fostering understanding of environmental issues. How does a deeper understanding contribute to addressing environmental problems?

Q: Discuss the importance of promoting responsible environmental action as an objective of environmental education. How does this objective lead to positive environmental outcomes?

Q: Explain the concept of environmental stewardship and its significance as an objective of environmental education. How does stewardship contribute to the protection of the environment?

Q: Explain the concept of environmental stewardship and its significance as an objective of environmental education. How does stewardship contribute to the protection of the environment?

Q: Discuss the role of environmental education in encouraging informed citizenship. How does informed citizenship contribute to addressing global cenvironmental challenges?

1.5 OBJECTIVES OF ENVIRONMENTAL EDUCATION

Environmental education is a multifaceted discipline with a diverse set of objectives aimed at raising awareness, fostering understanding, and inspiring responsible action regarding the environment. These objectives are designed to address the pressing environmental challenges and contribute to the development of informed and environmentally responsible individuals. In this comprehensive discussion, we will explore the objectives of environmental education, covering their significance, their role in addressing environmental issues, and their alignment with broader sustainability goals.

1.5.1 RAISING ENVIRONMENTAL AWARENESS

One of the primary objectives of environmental education is to raise awareness about the environment and the challenges it faces. This is a foundational goal because it serves as the starting point for all other objectives. Environmental awareness involves making individuals conscious of environmental issues, their causes, and potential consequences. This objective is significant for several reasons.

Significance: Raising awareness is the first step toward addressing environmental challenges. Without awareness, individuals are less likely to engage with or understand the significance of environmental issues.

Role in Addressing Environmental Issues: Environmental awareness is crucial for identifying and acknowledging the existence of environmental problems, whether they relate to climate change, biodiversity loss, pollution, or resource depletion.

Alignment with Sustainability Goals: The United Nations Sustainable Development Goal 4, "Quality Education," emphasizes the need for inclusive and equitable quality education that promotes lifelong learning opportunities for all. Raising environmental awareness aligns with this global objective.

1.5.2 FOSTERING ENVIRONMENTAL UNDERSTANDING

Beyond awareness, environmental education aims to foster a deeper understanding of environmental issues. This objective involves equipping individuals with knowledge about the environment, the ecological systems that sustain it, and the consequences of human actions. Understanding is critical for several reasons:

Significance: Understanding the environment's complexity and interdependence is essential for informed decision-making and responsible actions.

Role in Addressing Environmental Issues: A well-informed public is better equipped to assess the causes and consequences of environmental problems, enabling them to propose and support effective solutions.

Alignment with Sustainability Goals: The United Nations Sustainable Development Goal 4 emphasizes the importance of education that

promotes not only awareness but also knowledge and understanding.

1.5.3 PROMOTING RESPONSIBLE ENVIRONMENTAL ACTION

Environmental education is fundamentally action-oriented. It seeks to empower individuals to take responsible actions to address environmental challenges. This objective is essential for several reasons:

Significance: Environmental action is the ultimate goal of environmental education. Without action, awareness and understanding remain theoretical, and environmental issues persist.

Role in Addressing Environmental Issues: Responsible actions, such as adopting sustainable lifestyles, reducing pollution, conserving resources, and participating in environmental initiatives, are essential for mitigating and solving environmental problems.

Alignment with Sustainability Goals: Responsible environmental action aligns with the United Nations Sustainable Development Goal 13, "Climate Action," and Goal 12, "Responsible Consumption and Production."

1.5.4 CULTIVATING ENVIRONMENTAL STEWARDSHIP

Stewardship is a core objective of environmental education It encourages individuals to embrace their roles as responsible custodians of the environment. Stewardship is significant for several reasons:

Significance: Stewardship instills a sense of responsibility for the environment, reinforcing the idea that individuals are caretakers of the planet's natural resources.

Role in Addressing Environmental Issues: Stewardship encourages actions that prioritize the long-term health and sustainability of the environment, such as protecting natural habitats and conserving biodiversity.

Alignment with Sustainability Goals: Environmental stewardship aligns with the United Nations Sustainable Development Goal 15, "Life on Land," and Goal 14, "Life Below Water," both of which emphasize the importance of preserving terrestrial and marine ecosystems.

1.5.5 PROMOTING SUSTAINABILITY

Sustainability is at the heart of environmental education. This objective seek to impart the principles of sustainability and the importance of making choices that ensure the well-being of current and future generations. Sustainability is significant for several reasons:

Significance: Sustainability is the key to meeting present needs without compromising the ability of future generations to meet their own needs, as articulated in the Brundtland Report.

Role in Addressing Environmental Issues: Promoting sustainability is central to addressing environmental challenges, particularly those related to climate change, resource depletion, and ecosystem degradation.

Alignment with Sustainability Goals: The United Nations Sustainable Development Goals 12, 13, 14, and 15 explicitly address sustainability and environmental protection.

1.5.6 ENCOURAGING INFORMED CITIZENSHIP

Environmental education prepares individuals to be informed and engaged citizens who can participate in environmental policy discussions, ‘advocate for positive change, and hold decision-makers accountable. Informed citizenship is vital for several reasons:

Significance: Informed citizens can actively contribute to policy discussions, advocate for environmental protection, and influence decision-making at local, national, and global levels.

Role in Addressing Environmental Issues: Informed citizens are more likely to support policies and initiatives that address environmental challenges, such as those related to climate change and pollution.

Alignment with Sustainability Goals: The United Nations Sustainable Development Goal 16, "Peace, Justice, and Strong Institutions," emphasizes the importance of inclusive and accountable institutions, which are crucial for environmental governance.

1.5.7 DRIVING INNOVATION AND PROBLEM SOLVING

Environmental education encourages innovation and problem-solving. It motivates individuals to find creative solutions to environmental challenges, fostering a culture of entrepreneurship and sustainability. Innovation is significant for several reasons:

Significance: Innovation is essential for addressing complex environmental issues and developing sustainable technologies and solutions.

Role in Addressing Environmental Issues: Innovative solutions can lead to breakthroughs in areas such as renewable energy, waste reduction, and conservation technologies.

Alignment with Sustainability Goals: Innovation is essential for achieving several Sustainable Development Goals, including Goal 7, "Affordable and Clean Energy," and Goal 9, "Industry, Innovation, and Infrastructure."

1.5.8 ADDRESSING ENVIRONMENTAL INJUSTICE

Environmental education can help rectify environmental injustices by empowering marginalized communities with knowledge and advocacy tools to fight against discriminatory environmental practices and policies. Addressing environmental injustice is significant for several reasons:

Significance: Environmental injustices disproportionately impact vulnerable and marginalized communities, exacerbating existing social inequalities.

Role in Addressing Environmental Issues: Environmental education can contribute to addressing environmental disparities, such as access to clean air and water, and the equitable distribution of environmental resources.

Alignment with Sustainability Goals: Addressing environmental injustice aligns with the United Nations Sustainable Development Goal 10, "Reduced Inequalities," which emphasizes the need to reduce inequalities within and among countries.

The Broader Significance of These Objectives

While these objectives are essential within the realm of environmental education, they also have broader societal, ecological, economic, and educational significance. Here's how they contribute to the
well-being of society, the environment, the economy, and the educational sector:

The Societal Significance of These Objectives:

1. **Public Health:** Awareness and understanding of environmental issues are essential for improving public health. Informed individuals are more likely to make choices that promote healthier living environments.

2. **Economic Resilience:** Sustainability and responsible actions are closely tied to economic resilience. By promoting sustainability and resource efficiency, environmental education contributes to economic stability.

The Ecological Significance of These Objectives:

1. **Conservation of Biodiversity:** Objectives such as stewardship and sustainable action play a vital role in preserving biodiversity. Awareness and understanding of ecosystems are essential for conservation.
2. **Ecosystem Health**: Responsible actions and sustainability contribute to the health of ecosystems. By reducing pollution, habitat destruction, and resource exploitation, they help ecosystems thrive.
3. **Ecological Restoration:** Environmental education often involves ecological restoration projects, contributing to habitat rehabilitation and cological recovery.
4. **Sustainable Land Use**: Environmental education encourages sustainable land use practices, preventing land degradation and promoting the restoration of degraded lands.
5. **Climate Resilience:** Informed actions stemming from environmental education contribute to the resilience of ecosystems in the face of climate change.

The Economic Significance of These Objectives:

1. **Green Job Opportunities:** Environmental education fosters a workforce with the skills and knowledge to participate in the green economy. It leads to job creation in sectors such as renewable energy, sustainable agriculture, and environmental consulting.
2. **Resource Efficiency:** By promoting resource efficiency and waste reduction, environmental education can lead to cost savings for businesses and industries.

3. **Risk Mitigation:** Preparedness for environmental risks, such as Natural disasters and resource scarcity, reduces economic vulnerability.

4. **Innovation:** Environmental education drives innovation and entrepreneurship, leading to the development of sustainable technologies and solutions.

The Educational Significance of These Objectives:

1. **Holistic Learning:** Environmental education encourages holistic learning by incorporating knowledge from various disciplines, fostering a well-rounded education.
2. **Critical Thinking:** It promotes critical thinking and problem-solving, essential skills for addressing complex environmental challenges.
3. **Hands-On Learning:** Environmental education often involves experiential learning, which is proven to be highly effective in enhancing understanding and retention of information.
4. **Global Citizenship:** It prepares individuals to be global citizens, fostering an understanding of our interconnected world.
5. **Lifelong Learning:** Environmental education is a lifelong learning process, encouraging individuals to continue their environmental education beyond formal education.

The objectives of environmental education encompass a wide array of goals that are central to addressing environmental challenges and fostering responsible and informed individuals. These objectives are significant not only within the context of environmental education but also in their broader societal, ecological, economic, and educational implications. By striving to achieve these objectives, environmental education plays a pivotal role in securing a sustainable and resilient future for our planet.

CHECK YOUR PROGRESS

Q. Which objective of environmental education encourages individuals to find innovative solutions to environmental challenges?

A) Raising environmental awareness

B) Fostering environmental understanding

C) Promoting responsible environmental action

D) Driving innovation and problem-solving

Q: Explain the importance of addressing environmental injustice through environmental education. What is the objective of this endeavor?

A) To promote discriminatory environmental practices.

B) To exacerbate existing social inequalities.

C) To empower marginalized communities with knowledge and advocacy tools.

D) To discourage the consideration of social disparities.

Q: Which United Nations Sustainable Development Goal emphasizes the need to reduce inequalities within and among countries, aligning with the objective of addressing environmental injustice?

A) SDG 6: Clean Water and Sanitation

B) SDG 8: Decent Work and Economic Growth

C) SDG 10: Reduced Inequalities

D) SDG 16: Peace, Justice, and Strong Institutions

Q: What is the ultimate goal of environmental education in the context of

addressing environmental challenges?

A) To emphasize indifference toward environmental issues.

B) To foster a superficial understanding of environmental problems.

C) To promote responsible actions and stewardship.

D) To preserve the status quo regarding the environment.

Q: Explain the importance of raising environmental awareness as an objective of environmental education.

How does it contribute to addressing environmental challenges?

Q: Discuss the role of environmental education in fostering understanding of environmental issues. How does a deeper understanding contribute to addressing environmental problems?

Q: Explain the importance of promoting responsible environmental action as an objective of environmental education. How does this objective lead to positive environmental outcomes?

Q: Discuss the concept of environmental stewardship and its significance as an objective of environmental education. How does stewardship contribute to the protection of the environment?

Q: How does environmental education promote sustainability, and why is this objective central to addressing environmental issues?

1.5 LET US SUM UP

- Environmental education is a holistic, interdisciplinary process that aims to raise awareness, foster understanding, and inspire responsible action toward environmental issues.
- It encompasses formal and informal learning experiences that promote environmental literacy and encourage sustainable behaviors.
- Environmental education has evolved in response to growing environmental concerns, stemming from events such as the publication of Rachel Carson's "Silent Spring" and the first Earth Day in 1970.

- It has deep roots in indigenous and traditional knowledge systems that emphasize the interconnectedness of all life and the importance of living in harmony with nature.

- Environmental education is essential due to pressing global challenges, including climate change, habitat loss, pollution, and resource depletion.

- It empowers individuals to make informed decisions, take responsible actions, and advocate for sustainable policies.

- Addressing environmental injustices and reducing inequalities in environmental access and impacts are crucial aspects of the need for environmental education.

- Raising Environmental Awareness: To make individuals conscious of environmental issues, their causes, and potential consequences.

- Fostering Environmental Understanding: To equip individuals with knowledge about the environment, ecological systems, and the consequences of human actions.

- Promoting Responsible Environmental Action: To empower individuals to take tangible steps to address environmental challenges through sustainable practices and participation in environmental initiatives.

- Cultivating Environmental Stewardship: To instill a sense of responsibility for the environment, emphasizing long-term health and sustainability.

- Promoting Sustainability: To encourage choices that meet present needs without compromising the ability of future generations to meet their own needs.

- Encouraging Informed Citizenship: To prepare individuals to be informed and engaged citizens who can participate in policy discussions, advocate for positive change, and hold decision-makers accountable.

- Driving Innovation and Problem-Solving: To motivate individuals to find creative solutions to environmental challenges, fostering a culture of entrepreneurship and sustainability.

- Addressing Environmental Injustice: To empower marginalized communities with knowledge and advocacy tools to fight against discriminatory environmental practices and policies, reducing inequalities in environmental access and impacts.

1.6 FURTHER READING

1. Define Environmental Education and highlight its importance in the context of sustainable development.

2. Explain the role of Environmental Education in promoting environmental awareness among different age groups.

3. List and briefly explain the objectives of Environmental Education.

4. Discuss the significance of incorporating interdisciplinary approaches in Environmental Education.

5. What are the challenges faced in the implementation of Environmental Education programs? Provide examples.

6. Discuss the evolution and development of Environmental Education globally. How has the focus and scope of Environmental Education changed over the years?

7. Examine the role of Environmental Education in addressing contemporary environmental issues such as climate change, biodiversity loss, and pollution. Provide specific examples and case studies.

8. Explore the impact of Environmental Education on shaping environmental attitudes and behaviors. How can educators effectively engage learners in fostering a sense of environmental responsibility?

9. Critically analyze the effectiveness of environmental policies and l egislation in promoting Environmental Education. Provide examples of successful initiatives and areas that need improvement.

10. Examine the challenges and opportunities associated with integrating Environmental Education into formal education systems. How can curriculum design and teacher training contribute to the success of such integration?

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UNIT 2 STATUS OF ENVIRONMENTAL EDUCATION IN NEW EDUCATION POLICY

UNIT STRUCTURE

2.1 Learning Objectives

2.2 Introduction

2.3 Status of Environmental Education in new Education policy

2.3.1 Background Of Environmental Policy

2.2.2 Status of Environmental Policy

2.4 Role Of Various Government Institutions In NEP-2020

2.5 Role Of Various Non-Government Institutions In NEP-2020

2.6 Let Us Sum Up

2.7 Further Reading

2.1 LEARNING OBJECTIVES

After successful completion of this unit, you will be able to

- Evaluate the current state of environmental education in the educational system
- Examine how environmental education is integrated across various levels of education
- Assess the interdisciplinary approach and integration of environmental concepts into various subjects.
- Analyze the barriers that hinder the effective delivery of environmental education in educational institutions
- Evaluate the methods and tools proposed for assessing and evaluating students' knowledge and skills in environmental education.

2.2 INTRODUCTION

Environmental education is a vital component of modern education systems, aimed at creating environmentally conscious and responsible citizens. It equips individuals with the knowledge, values, and skills necessary to address complex environmental challenges. In this context, the introduction of the New Education Policy (NEP) in many countries represents a significant milestone in the evolution of educational strategies, including environmental education.

The New Education Policy, often designed to replace or update previous education policies, reflects changing perspectives on education, learning, and the need to adapt to the demands of a rapidly evolving world. Environmental education within the NEP plays a pivotal role in shaping the future of education. It addresses the urgency of environmental issues, the importance of sustainable practices, and the need to foster a deep understanding of ecological systems and biodiversity.

The status of environmental education in the New Education Policy is a subject of critical importance. It determines the degree to which environmental education is recognized, integrated, and prioritized within the broader educational framework. It also assesses the policies, strategies, and mechanisms in place to ensure that environmental education is not merely a theoretical concept but an active, practical, and effective tool for addressing environmental challenges.

The status of environmental education within the NEP encompasses various dimensions, including curriculum design, teacher training, community engagement, resource allocation, and the promotion of sustainable practices within educational institutions. It reflects the commitment of the education system

And policymakers to foster environmental literacy, responsible citizenship, and a culture of sustainability.

This assessment seeks to explore and evaluate the status of environmental education within the New Education Policy, identifying areas of strength and potential areas for improvement. It aims to provide insights into the policy's alignment with the broader goals of sustainable development, conservation of natural resources, and the mitigation of environmental issues.

By examining the provisions and strategies outlined in the NEP, this assessment aims to shed light on the following:

- The recognition of environmental education as an essential component of a well-rounded education.
- The integration of environmental concepts across various subjects and levels of education.
- The mechanisms for professional development and training of educators in environmental education.
- The engagement of local communities, civil society organizations, and other stakeholders in environmental education initiatives.
- The allocation of resources, including funding and infrastructure, for the effective implementation of environmental education programs.
- The assessment methods and tools used to evaluate students' knowledge, skills, and attitudes in environmental education.
- The promotion of environmental literacy and awareness among students, teachers and the community
- The commitment to fostering sustainable practices within educational institutions.
- The inclusion of environmental courses and research opportunities in higher education.

- The alignment of the NEP with international and national goals related to environmental sustainability and conservation.

In summary, the status of environmental education in the New Education Policy reflects the policy's vision for creating a generation of environmentally conscious and responsible citizens. This assessment delves into the details to provide a comprehensive understanding of the role of environmental education in the NEP and to identify areas for improvement and advocacy in the pursuit of a more sustainable and environmentally aware education system.

2.3 STATUS OF ENVIRONMENTAL EDUCATION IN NEW EDUCATION POLICY

2.3.1 BACKGROUND OF ENVIRONMENTAL POLICY:

- **Policy and Laws in Ancient India (500 BC-1638 AD):** Protection and cleaning up of environment was the essence of Vedic (1500–500 BC) culture. Charak Samhita (medical Science book of 900 BC - 600 BC) gives many instructions for the use of water for maintaining its purity. Under the Arthashastra (an ancient book on statecraft, economic policy and military strategy), various punishments were prescribed for cutting trees, damaging forests, and for killing animals and environmental ethics of nature conservation were not only applicable to common man but the rulers and kings were also bound by them.
- **Policy and Laws in Medieval India (1638-1800 AD):** To Mughal rulers, forest meant no more than woodlands where they could hunt. Barring “royal trees” which enjoyed patronage from being cut except upon a fee, there was no restriction on cutting of other trees, hunting animals, etc. Forests during this period shrank steadily in size.
- **Laws in British India (1800-1947 AD):** Shore Nuisance (Bombay and Kolaba) Act, 1853 imposed restrictions on the fouling of seawater. Merchant Shipping Act of 1858,

(dealt with prevention of sea pollution by oil), The Fisheries Act 1897, The Bengal Smoke Nuisance Act of 1905, Bombay Smoke Nuisance Act of 1912, Wild Birds and Animals Protection Act, 1912 (Shandilya , 2015).

- **National Education Policy 2020(NEP2020):** The National Education Policy was earlier formulated in the year 1986.In order to change the vision of India's Education System, on 29th July 2020;

The Union Cabinet of India approved the National Education Policy 2020. The policy is a comprehensive framework for elementary education to higher education as well as vocational training in both rural and urban India. The government has already clarified regarding the implementation of this policy that the states, institutions, schools, colleges, etc. have full freedom whether to implement it or not.

2.3.2 STATUS OF ENVIRONMENTAL POLICY:-

As per the NEP 2020, education is fundamental for achieving full human potential, developing an equitable and just society, and promoting national development. Providing universal access to quality education is the key to India's continued ascent, and leadership on the global stage in terms of economic growth, social justice and equality, scientific advancement, national integration, and cultural preservation. Universal high-quality education is the best way forward for developing and maximizing our country's rich talents and resources for the good of the individual, the society, the country, and the world. India will have the highest population of young people in the world over the next decade, and our ability to provide high-quality educational opportunities to them will determine the future of our country.

Environmental education is given importance in the National Education Policy 2020. The two main points that highlight the importance of environmental education in NEP 2020 are-

1. Concerted curricular and pedagogical initiatives, including the introduction of contemporary subjects such as Artificial Intelligence, Design Thinking, Holistic Health, Organic Living, Environmental Education, Global Citizenship Education (GCED), etc. at relevant stages will be undertaken to develop these various important skills in students at all levels.

2. Towards the attainment of such a holistic and multidisciplinary education, the flexible and innovative curricula of all HEIs shall include credit-based courses and projects in the areas of community engagement and service, environmental education, and value-based education. Environment education will include areas such as climate change, pollution, waste management, sanitation, conservation of biological diversity, management of biological resources and biodiversity, forest and wildlife conservation, and sustainable development and living. Value-based education will include the development of humanistic, ethical, Constitutional, and universal human values of truth (satya), righteous conduct (dharma), peace (shanti), love (prem), nonviolence (ahimsa), scientific temper, citizenship values, and also life-skills; lessons in seva/service and participation in community service programmes will be considered an integral part of a holistic education.

3. As the world is becoming increasingly interconnected, Global Citizenship Education (GCED), a response to contemporary global challenges, will be provided to empower learners to become aware of and understand

global issues and to become active promoters of more peaceful, tolerant, inclusive, secure, and sustainable societies. Finally, as part of a holistic education, students at all HEIs will be provided with opportunities for internships with local industry, businesses, artists, crafts persons, etc., as well as research internships with faculty and researchers at their own or other HEIs/research institutions, so that students may actively engage with the practical side of their learning and, as a by-product, further improve their employability.

CHECK YOUR PROGRESS

Q: Why is the allocation of resources, including funding and infrastructure, important in the context of environmental education in the NEP?

A) To discourage investment in educational infrastructure

B) To ensure that environmental education remains underfunded

C) To promote a sustainable and effective implementation of environmental education programs

D) To limit educational resources for other subjects

Q: What is the role of assessment methods and tools in the status assessment of environmental education in the NEP?

A) To exclude environmental issues from the assessment process

B) To promote superficial evaluation of environmental knowledge

C) To align assessment methods with the learning objectives and outcomes of environmental education

D) To avoid any assessment of student performance

Q: Why is the promotion of environmental literacy and awareness important within the NEP?

A) To limit students' understanding of environmental issues

B) To foster responsible citizenship and informed decision-making

C) To ensure that environmental education is kept separate from other subjects

D) To discourage students from engaging with environmental concepts

Q: How does the alignment of the NEP with national and international goals related to environmental sustainability and conservation benefit environmental education?

A) By promoting a narrow focus on local environmental issues

B) By limiting the scope of environmental education

C) By ensuring that environmental education is isolated from broader sustainability goals

D) By fostering a comprehensive approach to environmental education in line with global and national priorities.

Q: Explain the importance of assessing the status of environmental education in the New Education Policy (NEP). What are the key objectives of this assessment?

Q: Discuss the significance of integrating environmental concepts across various subjects and educational levels in the NEP. How does this integration contribute to environmental education?

Q: How does teacher training and professional development play a crucial role in the status of environmental education within the NEP? Explain its impact on the effectiveness of environmental education.

Q: How does community engagement and partnerships enhance the impact of environmental education within the NEP? Provide examples of how local communities can contribute to environmental education initiatives.

Q: Discuss the role of assessment methods and tools in the status assessment of environmental education within the NEP. How can effective assessment contribute to the improvement of environmental education?

2.4 ROLE OF VARIOUS GOVERNMENT INSTITUTIONS IN NEP–2020

The National Education Policy (NEP) of 2020 is a comprehensive document that outlines the vision for the future of education in India. This policy recognizes the vital role that various institutions, including government institutions, play in shaping and implementing educational reforms. In this essay, we will explore the role of government institutions in the NEP-2020 and their significance in achieving the policy's objectives.

Government institutions in the context of the NEP-2020 encompass a wide range of bodies, from the Ministry of Education at the central level to state-level education departments, district-level offices, and various statutory bodies, councils, and committees. These institutions collectively form the backbone of the education system in India and are entrusted with the responsibility of executing the policy's directives and goals. Let's delve into the role of these institutions in the NEP -2020.

Ministry of Education (MoE):

The Ministry of Education at the central level is the highest governing authority responsible for formulating policies and guidelines related to education. It plays a pivotal role in setting the agenda for education reform in India, and the NEP-2020 is a testament to this. The MoE was instrumental in the formulation and implementation of the policy, making it the primary driver of change at the national level.

The MoE's responsibilities under NEP-2020 include:

- **Policy Formulation:** The ministry is responsible for creating and revising policies that align with the NEP-2020 objectives. This includes crafting guidelines for curriculum reform, teacher training, and infrastructure development.

- **Resource Allocation:** The MoE plays a significant role in allocating financial and human resources to various aspects of the education system, including implementing the policy's recommendations.
- **Monitoring and Evaluation:** It is also tasked with overseeing the implementation of the NEP-2020 and evaluating its impact on the education landscape.
- **Coordination:** The ministry acts as a coordinator between various stakeholders, ensuring that the policy's provisions are understood and followed across the country.

State Education Departments:

At the state level, education departments are responsible for implementing the NEP-2020 within their respective jurisdictions. Each state's education department is responsible for adapting the national policy to the specific needs and conditions of the state. Their role includes:

- **Policy Localization:** State education departments are expected to adapt the broad principles of the NEP-2020 to the unique cultural, social, and economic characteristics of their region.
- **Implementation:** They are responsible for executing the policy's provisions, including the restructuring of school curriculum, teacher training, and school infrastructure development.
- **Regulation and Quality Assurance:** State education departments are responsible for maintaining quality standards in schools and colleges within their state, ensuring that the policy's vision of equitable and high-quality education is realized.
- **Resource Management:** Managing budgets and resources for educational initiatives within the state is another key role. This includes allocating funds for infrastructure development and teacher training.

District and Local Authorities:

The district and local administrative bodies play a critical role in implementing the NEP-2020 at the grassroots level. Their responsibilities include:

- **Infrastructure Development:** Local authorities are responsible for ensuring that schools and educational institutions have the necessary infrastructure, including classrooms, libraries, laboratories, and sanitation facilities.
- **Teacher Training:** District-level bodies often coordinate teacher training programs, a significant aspect of the NEP-2020 aimed at enhancing the quality of education.
- **Community Engagement:** They play a crucial role in fostering community participation in education, promoting awareness, and encouraging involvement in school management committees.
- **Monitoring and Feedback:** Local authorities are expected to monitor the progress of educational reforms and provide feedback to higher authorities for necessary adjustments and improvements.

Statutory Bodies and Councils:

The NEP-2020 calls for the establishment and strengthening of various statutory bodies and councils to oversee and regulate different aspects of education. These institutions include:

- **National Council for Teacher Education (NCTE):** NCTE is responsible for setting standards for teacher education programs and ensuring the quality of teacher training institutions. Its role is crucial in the context of NEP-2020's emphasis on teacher development.
- **National Testing Agency (NTA):** NTA is responsible for conducting standardized tests like the National Eligibility cum Entrance Test (NEET) and Joint Entrance Examination (JEE).

These exams play a vital role in college admissions and are addressed in the NEP-2020 with a focus on making them more inclusive.

- **National Accreditation Board for Higher Education (NABHE):** NABHE is proposed to be set up to accredit higher education institutions, promoting quality in higher education.
- **Rashtriya Shiksha Aayog (RSA):** This is proposed as a body to provide a platform for the coordination of education-related activities at various levels of government, further emphasizing the need for coordination between different institutions

Academic Institutions:

Government academic institutions, including schools, colleges, and universities, are fundamental in the NEP-2020's realization. They are tasked with implementing the policy's vision of curriculum reform, flexibility, and multidisciplinary. Their roles include:

- **Curriculum Development:** Academic institutions are responsible for developing and revising curricula in line with the NEP-2020's recommendations, emphasizing holistic and multidisciplinary education.
- **Teacher Training and Development:** They play a key role in implementing teacher training programs and faculty development initiatives to enhance the quality of education.
- **Innovation Hubs**: NEP-2020 envisions academic institutions as hubs for innovation and research. They are expected to promote research and innovation within their respective domains.
- **Community Engagement:** Academic institutions are encouraged to engage with their local communities, promoting a sense of responsibility and ownership for education.

Regulatory Bodies:

Regulatory bodies such as the University Grants Commission (UGC) and the All India Council for Technical Education (AICTE) are vital in ensuring the quality and standards of higher education in India. Their roles under the NEP-2020 include:

- **Quality Assurance:** These bodies are responsible for maintaining and improving the quality of education by setting and enforcing standards for universities and technical institutions.
- **Implementing Reforms**: Regulatory bodies are expected to align their regulations with the NEP-2020 provisions, particularly those related to curriculum flexibility and multidisciplinarity.
- **Monitoring and Accreditation:** They are tasked with monitoring the progress of institutions and accrediting those that meet the policy's standards, promoting quality assurance.

Teacher Training Institutions:

The NEP-2020 emphasizes the critical role of teachers in shaping the education system. Government teacher training institutions, such as District Institutes of Education and Training (DIETs) and State Councils of Educational Research and Training (SCERTs), are central in implementing the policy's goals, including:

- **Teacher Training Programs:** These institutions are responsible for designing and conducting teacher training programs, aligning them with the NEP-2020's vision of continuous professional development.
- **Curriculum Development:** They are involved in developing innovative and engaging curricula for teacher education programs.

- **Research and Innovation**: Teacher training institutions are expected to promote research and innovation in pedagogy and teacher training methods.
- **Monitoring and Evaluation:** They play a role in assessing the effectiveness of teacher training programs and making necessary improvements.

Other Government Agencies:

Various other government agencies, including bodies responsible for minority education, tribal education, and social justice, are critical in addressing the specific needs of marginalized and underserved communities as highlighted in the NEP-2020. Their roles include:

- **Inclusivity and Equity:** These agencies work towards ensuring that education is accessible and equitable for all, paying special attention to historically disadvantaged communities.
- **Cultural and Linguistic Preservation:** They play a role in preserving and promoting regional languages and cultures as part of the NEP-2020's efforts to ensure linguistic diversity.
- **Scholarships and Financial Support:** Government agencies provide Financial support and scholarships to students from marginalized communities, enabling them to access higher education.

In conclusion, government institutions play a multifaceted and indispensable role in the implementation of the National Education Policy of 2020. From the central Ministry of Education to state-level departments, local authorities, regulatory bodies, and academic institutions, each entity has specific responsibilities and functions aimed at achieving the policy's objectives. As the NEP-2020 seeks to transform the education landscape in India, the effectiveness of these institutions in carrying out their roles will be crucial in shaping the future of education in the country.

CHECK YOUR PROGRESS

Q. How do academic institutions contribute to the implementation of NEP 2020 in the field of environmental education?

A) By organizing wildlife safaris

B) Developing and revising curricula with an environmental focus

C) Promoting industrial growth without environmental regulations

D) Conducting pollution control experiments

Q. Government teacher training institutions, such as District Institutes of Education and Training (DIETs), play a crucial role in NEP-2020 by:

A) Monitoring the air quality in schools

B) Offering scholarships for environmental studies

C) Designing and conducting teacher training programs with an environmental perspective

D) Regulating wildlife conservation activities

Q.Other government agencies involved in environmental education policies, and legislation play a significant role in:

A) Promoting environmental pollution

B) Ensuring the inaccessibility of education for marginalized communities

C) Preserving and promoting regional languages and cultures

D) Monitoring environmental education programs at universities

Q. Under NEP-2020, what is the primary role of local authorities, such as district and municipal bodies, in the context of environmental education?

A) Conducting international environmental negotiations

B) Implementing national environmental policies at the grassroots level

C) Regulating industrial emissions

D) Promoting unsustainable development projects

Q: Explain the role of the Ministry of Education in promoting environmental education and sustainability as outlined in NEP-2020. Provide examples of its initiatives and responsibilities in this regard.

Q: Discuss the role of state education departments in the context of environmental education, policies, and legislation under NEP-2020. ow do they adapt national policies to local needs?

Q: Explain the role of the National Council for Teacher Education (NCTE) in promoting environmental education and sustainability as per NEP-2020. How does NCTE contribute to the development of teachers with an environmental focus?

Q: Describe the role of the University Grants Commission (UGC) and the All India Council for Technical Education (AICTE) in the context of higher education and environmental education under NEP-2020.

2.5 ROLE OF VARIOUS NON–GOVERNMENT INSTITUTIONS IN NEP– 2020

The National Education Policy (NEP) of 2020 is a landmark document that outlines the vision for the future of education in India. While government institutions play a significant role in shaping and implementing educational reforms, non-government institutions are equally important in achieving the policy's

objectives. In this essay, we will explore the role of non-government institutions in the NEP-2020 and their significance in transforming the education landscape in India.

Non-government institutions in the context of the NEP-2020 include a diverse range of organizations and entities, such as private schools, colleges, universities, non-profit organizations, civil society groups, and international bodies. These institutions complement the efforts of government institutions and play a crucial role in expanding access, promoting innovation, and improving the quality of education. Let's delve into the role of non-government institutions in the NEP-2020:

Private Schools and Educational Institutions:

Private schools and educational institutions are integral to the education ecosystem in India. They contribute to the NEP-2020 in several ways:

- **Expanding Access:** Private schools often cater to a significant portion of the student population, contributing to the policy's goal of universalization of education. They help in reducing the burden on public schools by providing alternative options for parents and students.
- **Innovation in Pedagogy:** Many private schools are known for their innovative teaching methods and pedagogical approaches. The NEP-2020 encourages such innovative practices and recognizes the role of private institutions in setting new benchmarks.
- **Multilingual and Multidisciplinary Education:** Private institutions often offer a wider range of language and subject choices, contributing to the policy's emphasis on multilingualism and multidisciplinarity.
- **Infrastructure Development:** Private schools frequently invest in modern infrastructure, which aligns with NEP-

2020's focus on improving school facilities and the overall learning environment.

Non-Profit Organizations (NGOs):

Non-profit organizations and NGOs have a vital role to play in the implementation of the NEP-2020, particularly in promoting equitable and inclusive education. Their roles include:

- **Supporting Marginalized Communities:** Many NGOs work closely with marginalized communities, providing educational support, scholarships, and initiatives that align with the policy's goals of social justice and inclusivity.
- **Teacher Training:** NGOs often conduct teacher training programs, addressing the need for enhanced teacher capacity, which is a significant component of NEP-2020.
- **Innovative Programs:** They implement innovative programs that cater to specific educational needs, such as remedial classes, digital literacy

initiatives, and vocational training.

- **Advocacy and Awareness:** NGOs play a crucial role in advocating for the rights of children, raising awareness about the importance of education, and holding both government and non-government institutions accountable for the quality of education.

Community-Based Organizations:

These organizations are often deeply rooted in local communities and are essential in achieving the policy's objectives:

- **Community Engagement:** Community-based organizations facilitate community participation in the planning and management of educational programs, promoting a sense of ownership and responsibility for education at the grassroots level.
- **Cultural Preservation:** They play a role in preserving

and promoting indigenous languages and cultures, aligning with NEP-2020's emphasis on linguistic and cultural diversity.

- **Bridge Programs:** These organizations often run bridge programs to help children from disadvantaged backgrounds catch up on their education, ensuring they are not left behind.

Higher Education Institutions:

Non-government higher education institutions, including private universities and colleges, have a significant role to play in advancing the goals of NEP-2020:

- **Research and Innovation:** These institutions are hubs for research and innovation, and they contribute to the policy's objective of promoting research and development in various fields.
- **Multidisciplinarity :** NEP-2020 encourages universities and colleges to offer multidisciplinary programs, and many non-government institutions have been quick to embrace this approach.
- **Autonomy and Flexibility:** Non-government higher education institutions often have more autonomy, allowing them to adapt to the changing educational landscape and experiment with new approaches.
- **International Collaborations:** Many non-government institutions have established international collaborations and partnerships, contributing to the policy's global perspective and cross-border educational initiatives.

International Organizations and Collaborations:

International organizations, foreign universities, and collaborations with foreign entities have a role in enhancing the quality of education in India:

- **Global Exposure:** International collaborations provide students and faculty with global exposure, aligning with NEP-2020's emphasis on internationalization and the development of a global perspective.
- **Exchange Programs:** Collaboration with foreign universities often involves student and faculty exchange programs, enriching the learning experience and promoting cultural diversity.
- **Quality Assurance:** Inte1rnational collaborations can help in establishing and ensuring the quality of education, particularly in areas like teacher training and research.
- **Research and Funding:** Foreign collaborations often bring in research opportunities and funding, contributing to the policy's goal of fostering research and innovation in India.

Think Tanks and Research Institutions:

Think tanks and research institutions, both domestic and international, play a pivotal role in shaping educational policies and practices:

- **Policy Research:** These institutions conduct research and analysis on educational policies, providing valuable insights and recommendations to inform policy decisions.
- **Data and Evaluation:** They are often involved in data collection and evaluation of educational initiatives, helping in the assessment of policy implementation and impact.
- **Advocacy and Reform:** Think tanks and research institutions often engage in advocacy and work towards educational reforms, aligning their efforts with the goals of NEP-2020.
- **Innovation in Education:** They promote innovative educational practices and pedagogical approaches, contributing to the policy's emphasis on flexibility and creativity in education.

Private Training and Coaching Institutes:

Private training and coaching institutes are a significant part of the education ecosystem in India and have roles in the context of NEP-2020:

- **Supplementary Education**: These institutes offer supplementary coaching and training to students, which can complement their formal education and prepare them for competitive exams.
- **Vocational Training**: Many private institutes provide vocational training and skill development programs, aligning with NEP-2020's emphasis on employability and practical skills.
- **Digital Education:** They often leverage digital technology to offer online courses and resources, promoting digital literacy and expanding access to education.
- **Career Guidance:** Private institutes can provide career counseling and guidance to students, helping them make informed choices about their educational and career paths.

CHECK YOUR PROGRESS

Q. What is the role of non-profit organizations (NGOs) in the context of environmental education and sustainability as per NEP-2020?

A) Conduct standardized tests for environmental knowledge.

B) Support marginalized communities and provide educational initiatives.

C) Set curriculum standards for environmental programs.

D) Monitor air quality in schools and colleges.

Q. Community-based organizations are crucial in implementing NEP-2020's goals. What is one of their primary roles in the context of environmental education?

A) Conduct international environmental negotiations.

B) Provide funding for environmental research.

C) Promote sustainable industrial development.

D) Facilitate community participation in education and cultural preservation

Q. How do higher education institutions, including private universities and colleges, contribute to the environmental education goals of NEP-2020?

A) By setting air quality standards in urban areas.

B) Promoting industrial growth without environmental regulations.

C) Advancing research and innovation in environmental science.

D) Regulating water pollution in rural communities.

Q. International collaborations in the field of environmental education under NEP-2020 primarily aim to:

A) Promote cultural homogeneity.

B) Isolate the Indian education system from global influences.

C) Provide global exposure and opportunities for students and faculty.

D) Implement strict visa regulations for international students.

Q. Discuss the role of non-governmental institutions (NGOs) in environmental education as envisaged in the National Education Policy 2020 (NEP 2020).

Q: Describe some specific examples of how NGOs are contributing to environmental education in India.

Q: What are some of the challenges faced by NGOs in promoting environmental education in India?

Q: What are some recommendations for strengthening the role of NGOs in environmental education in India?

2.6 LET US SUM UP

- Holistic Approach: The NEP recognizes the importance of environmental education as an integral component of a holistic and multidisciplinary approach to education.
- Foundational Literacy: It emphasizes the need for early environmental literacy, incorporating environmental concepts and knowledge into foundational education.
- Multilingual and Multidisciplinary: The policy promotes multilingualism and multi-disciplinarily, encouraging the integration of environmental education across subjects and languages.
- Inclusivity: NEP-2020 focuses on inclusivity, aiming to make environmental education accessible to all, including marginalized and underprivileged communities.
- Global Perspective: The policy advocates a global perspective in environmental education, encouraging international collaborations and partnerships.
- Teacher Training: It highlights the importance of teacher training in environmental education to ensure effective pedagogy.
- Ministry of Education: The Ministry formulates and implements environmental education policies, setting the direction for educational reforms in this area.
- State Education Departments: State-level authorities localize and implement national environmental education policies, adapting them to regional needs and conditions.
- National Council for Teacher Education (NCTE): NCTE sets standards for teacher education programs with an environmental focus, ensuring that teachers are equipped to teach environmental concepts effectively.
- Regulatory Bodies (UGC, AICTE): These bodies ensure the quality andstandards of environmental education in higher education institutions and promote innovation in curriculum design.

- Rashtriya Shiksha Aayog (RSA): RSA coordinates various education-related activities at different government levels and supports the implementation of environmental education initiatives.
- NGOs: Non-profit organizations support marginalized communities by providing educational initiatives, conducting teacher training, and offering innovative programs in environmental education.
- Community-Based Organizations: These organizations facilitate community participation in environmental education and contribute to cultural preservation.
- Higher Education Institutions: Private universities and colleges promote research, multidisciplinarity, and internationalization in environmental education.
- International Collaborations: International organizations and foreign collaborations provide global exposure, exchange programs, quality assurance, research opportunities, and funding.
- Think Tanks and Research Institutions: Think tanks and research institutions conduct policy research, data collection and evaluation, advocacy, and innovation in environmental education.
- Private Training and Coaching Institutes: These institutions offer supplementary education, vocational training, and digital education resources to enhance environmental knowledge and skills.

2.7 FURTHER READING

1. What is the significance of incorporating Environmental Education in the New Education Policy (NEP)? Provide key points.

2. Outline the key objectives outlined for Environmental Education in the New Education Policy and explain how they differ from previous policies.

3. Discuss the role of schools and higher education institutions in implementing Environmental Education as per the New Education Policy.
4. Briefly explain any specific initiatives or programs mentioned in the New Education Policy aimed at promoting environmental awareness among students.
5. How does the New Education Policy address the integration of environmental principles across different subjects in the curriculum?
6. Analyze the key features of the New Education Policy that pertain to Environmental Education. How does the policy envision the role of Environmental Education in shaping the overall education system in the country?
7. Evaluate the challenges and opportunities associated with the implementation of Environmental Education in schools and higher education institutions as outlined in the New Education Policy. Provide recommendations for overcoming challenges.
8. Examine the role of teachers and educational institutions in fostering environmental values and sustainability, as per the objectives set forth in the New Education Policy. How can professional development programs support educators in this regard?
9. Compare and contrast the treatment of Environmental Education in the New Education Policy with previous education policies. What are the key advancements, and what aspects need further attention?
10. Explore the potential impact of the New Education Policy on students' environmental awareness and citizenship. How can the policy contribute to producing environmentally conscious and responsible citizens?

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UNIT 3 ENVIRONMENTAL POLICY

UNIT STRUCTURE

3.1 Learning Objectives

3.2 Introduction

3.3 Government Policies In The Protection And Development Of Environment

- 3.3.1 Major Environmental policies And Legislation In India
- 3.3.2 Policies To Protect Environment In India
- 3.3.3 Legislations And Rules For The Protection of Environment In India

3.4 Environmental Considerations in Economic Planning and Development in India

3.5 National Committee on Environmental Planning (NCEP) and District Environmental Committee

- 3.5.1 National Committee On Environmental Planning (NCEO)
- 3.5.2 District Environmental Committee

3.6 Let Us Sum Up

3.7 Further Reading

3.1 LEARNING OBJECTIVES

After successful completion of this unit, you will be able to

- Analyze and evaluate the various frameworks and approaches within environmental policies
- Examine the processes and challenges associated with the implementation of environmental policies
- Explore the range of policy instruments and tools used in environmental governance
- Assess the role of environmental policies in promoting sustainability
- Gain a global perspective on environmental policy by considering international cooperation, agreements, and their impact on local and national contexts.

3.2 INTRODUCTION

The National Environment Policy, 2006 is given by the Ministry of Environment and Forests. The National Environment Policy, 2006 is the outcome of extensive consultations with experts in different disciplines, Central Ministries, Members of Parliament, State Governments, Industry Associations, Academic and Research Institutions, Civil Society, NGOs and the Public.

- **Goals of Environmental Policy:** The goals of the Environmental policy may
  be formulated in several ways - to protect human health, ensure viability of
  wild life, preservation of historic monuments, stopping further degradation of
  the environment etc. The policy is the overall environmental intention and
  direction forming the backbone and skeletal framework, from which all other
  environmental components are hung including environmental management
  systems, audits, assessments and reports.
- **Objectives of National Environment Policy (2006):**The principal objectives of this policy are enumerated below. These Objectives relate to current perceptions of key environmental challenges. They may, accordingly, evolve over time:
  i. **Conservation of Critical Environmental Resources:-** To protect and conserve critical ecological systems and resources, and invaluable natural and man-made heritage, which are essential for life support, livelihoods, economic growth, and a broad conception of human well-being.

ii. **Intra-generational Equity: Livelihood Security for the Poor:-**To ensure equitable access to environmental resources and quality for all sections of society, and in particular, to ensure that poor communities, which are most dependent on environmental resources for their livelihoods, are assured secure access to these resources.

iii. **Inter-generational Equity:-**To ensure judicious use of environmental resources to meet the needs and aspirations of the present and future generations.

iv. **Integration of Environmental Concerns in Economic and Social Development:-**To integrate environmental concerns into policies, plans, programmes, and projects for economic and social development.

v. **Efficiency in Environmental Resource Use:-**To ensure efficient use of environmental resources in the sense of reduction in their use per unit of economic output, to minimize adverse environmental impacts.

vi. **Environmental Governance:-**To apply the principles of good governance (transparency, rationality, accountability, reduction in time and costs, participation, and regulatory independence) to the management and regulation of use of environmental resources.

vii. **Enhancement of Resources for Environmental Conservation:-**To ensure higher resource flows, comprising finance, technology, management skills, traditional knowledge, and social capital, for environmental conservation through mutually beneficial multi stakeholder partnerships between local communities, public agencies, the academic and research community, investors, and multilateral and bilateral development partners.

3.3 GOVERNMENT POLICIES IN THE PROTECTION AND DEVELOPMENT OF ENVIRONMENT

3.3.1 MAJOR ENVIRONMENT POLICIES AND LEGISLATIONS IN INDIA:

The Ministry of Environment & Forests is the nodal agency in the administrative structure of the Central Government, for the planning, promotion, co -ordination and overseeing the implementation of environmental and forestry programmes. The Ministry is also the Nodal agency in the country for the United

Nations Environment Programmes (UNEP). The principal activities undertaken by Ministry of Environment & Forests consist of conservation & survey of flora, fauna, forests and Wildlife, prevention & control of pollution, afforestation & regeneration of degraded areas and protection of environment, in the framework of legislations.

The main tools utilized for this include surveys, impact assessment, control of pollution, regeneration programmes, support to organizations, research to solve solutions and training to augment the requisite manpower, collection and dissemination of environmental information and creation of environmental awareness among all sectors of the country's population.

The Central Pollution Control Board (CPCB), statutory organization, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974. Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981. It serves as a field formation and also provides technical services to the Ministry of Environment and Forests of the provisions of the Environment (Protection) Act, 1986.

Principal Functions of the CPCB, as spelt out in the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, (i) to promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution, and (ii) to improve the quality of air and to prevent, control or abate air pollution in the country.

3.3.2 POLICIES TO PROTECT ENVIRONMENT IN INDIA

- Environment Protection Act, 1986.
- National Conservation Strategy and Policy Statement on Environment and Development, 1992.
- Policy Statement for the Abatement of Pollution, 1992.
- National Environment Policy, 2006.
- Vision Statement on Environment and Health.

3.3.3 LEGISLATIONS AND RULES FOR THE PROTECTION OF ENVIRONMENT IN INDIA

- **The Wild Life (Protection) Act, 1972:** This Act was enacted under the provisions of Article 252 to prevent the decline of wild animals and birds. It prohibits the poaching of certain animals except for the purpose of education or scientific research. In respect of certain wild animals, license is made a prerequisite for their hunting. It provides that a State Government may declare any area to be a sanctuary or as a national park if it considers that such area is of adequate ecological, faunal, floral, geomorphological, natural or zoological significance for protecting, propagating or developing wild life or its environment.

The Water (Prevention and Control of Pollution) Act, 1974: The first important environmental law enacted by Parliament is the Water (Prevention and Control of Pollution) Act, 1974. As water is a State subject and as 12 States had passed the enabling resolutions, the Government of India, in pursuance of clause 19 of Article 252, passed this legislation5.

It defines pollution such contamination of water or such alteration of the physical, chemical or biological properties of water of such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or it is likely to create a nuisance or rend such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or of aquatic organisms.

This Act paved the way for the creation of Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs). The main function of the CPCB shall be to promote cleanliness of streams and wells in different areas of the States. The term stream includes river, watercourse, inland water, subterranean waters, and sea or tidal waters to such extent or such point a State Government may specify in this behalf.

The Board may perform functions such as-

(**a)** lay down, modify or annul in consultation with the State Government concerned, the standards for a stream or well;

(b) plan and cause to the executed a nationwide programme for the prevention, control and abatement of water pollution;

(c) collect, compile and publish technical and statistical data relating to water pollution and the measures devised for its effective prevention and control and prepare manuals, codes or guides relating to treatment and disposal of sewage and trade effluents and disseminate information connected therewith.

(d) advise the Central Government on any matter concerning the prevention and control of water pollution;

(e) coordinate the Activities of the SPCBs and provide technical assistance and guidance to the SPCBs; and

[It is worth noting that a few industrially advanced States like Gujarat, Maharashtra and Tamil Nadu did not pass the enabling legislations even though the need for such legislation was felt as early as 1961. Tamil Nadu passed the necessary legislation only in 1982 and set up the Tamil Nadu Pollution Control Board in 1984. This Act mentions Central Board and State Boards. Later on these names were changed to Central Pollution Control Board and State Pollution Control Boards].

(f) Carry out and sponsor investigation and research relating to problems of water pollution and prevention, control or abatement of water pollution.

The SPCBs have similar functions within their areas. The Act gives powers to the SPCBs to take samples of effluents from any source and lays down the procedure to be followed in connection therewith. It gives power of entry and inspection into the premises of the polluters premises. It prohibits any poisonous, noxious or polluting matter to enter into any stream, or well or sewer or land. Consent of the Board is required to establish or take any steps to establish any industry, operation or process or any treatment and disposal system or any extension or addition thereto, which is likely to discharge sewage or trade effluent into a stream or well or sewer or on land; or bring into use any new or altered outlet for the discharge of sewage; or begin to make any new discharge of sewage. Any person who is not granted the consent may, within 30 days from the date on which the order is communicated to him, prefer an appeal to the appellate authority constituted by the State Government.

The SPCBs have the powers to carry out certain works stipulated in the consent order if the person fails to meet the conditions and to make application to courts for restraining apprehended pollution of water in streams or wells. In the event of accident or other unforeseen Act or event, resulting in the discharge or likely discharge of polluting matter into a stream or well or sewer or land, the person in charge of such a place is required to intimate the occurrence of such an accident, Act or event to the SPCB. Both Central Government and State Governments are given the powers to make rules in consultation with their respective Boards.

Chapter VII of the Act prescribes penalties for

(a) failures to comply with the SPCBs directions restraining or prohibiting the discharge of polluting matter into the stream, well or land;

(b) failures to comply with court's decision to restrain discharge of effluent on application by the SPCBs, The rules made by the Central Government and State Governments must be laid before the Central and State legislatures respectively and the suggested modifications should be incorporated in the rules.

(c) failures to comply with SPCBs directions for closure, prohibition or regulation of any industry, operation or process or the stoppage or regulation or supply of electricity, water or any other service.

The penalties for non-compliance are imprisonment from 18 months to 6 years with a fine for the first contravention and additional fine up to Rs.5000 per day till the failure continues.

For non-compliance with effluent standards prescribed by SPCBs, the penalties are imprisonment from 18 months to 6 years and fine. For making new outlets and thus discharging effluent without consent of the SPCBs, the penalties are imprisonment from 2 to 6 years and fine for the first contravention and imprisonment from 2 to 7 years and fine after the first conviction. Dwivedi (1977) points out that this Act left many grey areas that were difficult to administer. This Act does not cover groundwater contamination. Municipalities which are primarily responsible for treating residential wastes remain free from direct liability.

It allows the Government agencies too much flexibility. For example the Act States that the head of a polluting unit would not be punished if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent it. This Act does not give the victims the right to go to the courts to punish the erring units; charges can be brought to courts only by the Boards. The penalties for non-compliance with the standards or directions are independent of the extent of violations.

The Boards are expected to depend largely on Government grants for their operations. As it was found that the Boards were overburdened and underfunded, the Water Crisis (Prevention and Control of Pollution) Act, 1977 was enacted. Even after revisions in 1992, the rates of water crisis varied between 1.50 paise to 5.00 paise for kilolitre for various uses. These rates are too low compared with the opportunity costs of water. Many SPCBs raise large proportion of their revenues from the consent fees. It may be noted that in most States electricity supply undertakings and water supply agencies are State monopolies. Most small and medium-sized municipalities have no sewage systems.

- **Forest (Conservation) ACT, 1980:** This Act was passed to prevent deforestation, which results in ecological imbalance and environmental deterioration. It prevents even the State Governments and any other authority dereserves a forest which is already reserved. It prohibits forestland to be used for non-forest purposes, except with the prior approval of the Central Government.

- **The Air (Prevention and Control of Pollution) Act, 1981**: The preamble to the Act States that whereas decisions were taken at the United Nations Conference on the Human Environment held in Stockholm in June 1972, in natural resources of the earth which, among other things, include the preservation of the quality of air and control of air pollution; And, whereas it is considered necessary to implement the decisions aforesaid in so far as they relate to the preservation of the quality of air and control of air pollution.

  The Central Government used Article 253 to enact this law and made it applicable throughout India. This Act defines air pollutant as any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment. The CPCB and the SPCBs created under the Water Act 1974 are entrusted with the implementation of the provisions of the Act. The CPCB may –

  (a) advise the Central Government on any matter concerning the improvement of the quality of air and prevention, control or abatement of air pollution;

  (b) plan and cause to be executed a nationwide programme for the prevention, control or abatement of air pollution;

(c) coordinate the Activities of the SPCBs;

(d) provide technical assistance and guidance to the SPCBs;

(e) collect, compile and publish technical and statistical data relating to air pollution and the measures devised for its effective prevention, control or abatement and prepare manuals, codes or guides relating to prevention, control or abatement of air pollution; and

(f) lay down standards for the quality of air.

The functions of the SPCBs also include inspection of any control equipment, industrial plant or manufacturing process and to give, by order, such directions to such persons as it may consider necessary to take steps for the prevention, control or abatement of air pollution. The units belonging to the list of polluting industries should obtain consents before their establishment or/and continuing their operations. The SPCBs, in consultation with the State Governments, wherever necessary, can exercise the following powers:

(a) declare any area or areas within the State as air pollution control area; prohibit the use of certain fuels or appliances in this control area; prohibit the banning of any material (not being fuel) which ma cause air pollution;

(b) give instructions for ensuring standards for emission from automobiles;

(c) restrict use of certain industrial plants;

(d) disallow discharge of the emission of any air pollutant in excess of the standards laid down;

(e) make applications to court for restraining persons from causing air pollution;

(f) power of entry and inspection into the premises of the polluters;

(g) obtain information from the polluting units and take samples of air or emission; and

(h) direct the closure, prohibition or regulation of any industry, operation or process; or the stoppage or regulation of supply of electricity, water or any other service.

For failures to comply with the restriction on use of certain industrial plants, discharging emission of air pollutants in excess of the standards laid
down by the SPCBs, and non-compliance with directions relating to closure, prohibition or regulation of any industry, operation or process or the stoppage of utility services, the penalties are imprisonment for a term between 18 months and 6 years and with fine; and in case the failure continues, with and additional fine which may extend to Rs.5000 for every day during which such failure continues after conviction for the first such failure. If the failure continues beyond one year after the date of conviction, the offender shall be punishable with imprisonment for a term between 2 years and 7 years and with fine. The penalties for certain Acts such as obstruction of any person Acting under the orders of SPCBs, failure to intimate the occurrence of the emissions in excess of the standards, giving false information for obtaining consent to operate, are imprisonment for a term which may extend to 3 months with fine which may extend to Rs.10000 or both. As in the case of the Water (Prevention and Control of Pollution) Act, 1974, the Central and State Governments can make rules. As in the Water Act, company officials may be exempted from liability if they establish due diligence and lack of knowledge about the emissions. Also, the victims cannot go to the courts to frame charges against the polluters.

- **The Tiwari Committee, 1980:** The Government of India set up a Committee in January 1980, under the Chairmanship of Shri N.D. Tiwari, then Deputy Chairman of the Planning Commission, to review the existing environmental legislation and to recommend legislative measures and administrative machinery for environmental protection. This Committee stressed the need for the proper management of the country's natural resources of land, forest and water in order to conserve the nation's ecological base. Its major recommendations are:

  (a) creation of a comprehensive environmental code to cover all types of pollution and environmental degradation;
  (b) constitution of environment courts in all District Head Quarters, and the appointment of experts to assist the Court;
  (c) creation of a Department of Environment;
  (d) setting up of a Central Land Commission;
  (e) provision of economic incentives to industries to encourage environment friendly products, income tax and sales tax benefits for adopting clean technology, investment tax credits for purchases of purification devices, inclusion of replacement cost of purification equipment in annual operating costs, and minimal tax or no tax on the manufacture of pollution control devices; and
  (f) Environmental impact assessment (EIA) not only be a prerequisite for industry to start, but also must be repeated periodically.

The Government had constituted the Department of Environment in 1980, which was transferred to the newly created Ministry of Environment & Forests (MoEF) in 1985. It had also set up the Land Commission. Fiscal incentives such as rebates on excise/customs duties for pollution control equipments, accelerated depreciation allowance on selected pollution control equipments, financial and technical assistance to small scale units in industrial clusters to set up common effluent treatment plants are now available10. EIA has become mandatory for highly polluting industries since 1994.

- **Bhopal Tragedy up to the 1998 (1984 to 1998):** Constitutional amendments, legislations and policies relating to environmental protection during this period were influenced by domestic events, shift in economic policy and international events. The Bhopal gas tragedy and the difficulties faced in claiming compensation from the company and disbursing compensations to the victims necessitated the need for a comprehensive environmental legislation, rules relating to storing, handling and use of hazardous wastes and a law to provide immediate compensations to the victims of industrial accidents. Since June 1991, the Government of India announced a series of reform measures to liberalize and globalize the Indian economy. An urgent need was felt for decentralization and debureaucratisation. The amendments to the Constitution in 1994 recognized the three-tier structure of the Government and facilitated the transfer of powers and resources to the local Governments. The Supreme Court and High Courts have been very active in the enforcement of legislations relating to environmental protection.

- The decisions reached at the UN Conference on Environment and Development held at Rio de Janerio in 1992 as well as the shift in economic policy led the Government of India to reexamine the command and control (CAC) type of regulatory regime for environmental protection and to explore the feasibility of combining regulatory instruments along with economic instruments for controlling environmental pollution.

CHECK YOUR PROGRESS

Q. Which government policy tool involves assigning a monetary value to environmental services and resources to make them part of the market economy?

A) Command and control regulations
B) Environmental taxation
C) Cap and trade system
D) Payment for ecosystem services (PES)

Q. The "Biodiversity Act" in many countries serves to:

A) Promote the destruction of ecosystems
B) Regulate and conserve biodiversity and associated knowledge
C) Encourage wildlife trade without restrictions
D) Eliminate protected areas

Q. Which of the following is an example of a government policy promoting renewable energy sources?

A) Subsidies for fossil fuel consumption
B) Tax incentives for electric vehicle purchases
C) Easing regulations on coal mining
D) Taxation on solar panels and wind turbines

Q. What does the "National Green Tribunal" (NGT) in India primarily focus on?

A) Promoting industrial pollution

B) Overturning environmental regulations

C) Adjudicating cases related to environmental protection and conservation

D) Advocating for deforestation

Q: Explain the significance of Environmental Impact Assessment (EIA) in the context of government policies for environmental protection. Provide examples of how EIA influences decision-making in development projects.

Q: Discuss the concept of the "Precautionary Principle" in environmental policy. How does this principle guide decision-making in the face of uncertainty regarding potential environmental harm?

Q: Describe the role of international agreements in shaping national
government policies for environmental protection. Provide an example of a significant international environmental treaty and its impact on national policies.

Q: Explain the concept of the "Biodiversity Act" and its significance in
government policies for the conservation of biodiversity. Provide examples of measures taken under such acts.

Q: Discuss the role of government policies in promoting renewable energy sources. Provide examples of policy instruments used to incentivize the transition to cleaner energy options.

3.4 ENVIRONMENTAL CONSIDERATIONS IN ECONOMIC PLANNING AND DEVELOPMENT IN INDIA

Due to the increasing population, industrialization and urbanization, the environment is being exploited to a greater extent. In order to control the situation well in advance in India, the Ministry of Environment and Forests is charged with the responsibility of planning, promoting, coordination and overseeing the implementation of various Environmental and Forestry programmes. Responsibilities include environmental management to promote health considerations, focus on poverty alleviation by enhancing access of the poor to natural resources for livelihood and heightening awareness regarding environmentally sound living process by focusing on nature-human synergy. The ministry has been designated as the nodal agency in the country for the United Nations Environment Programme (UNEP), International Centre for Integrated Mountain development (ICIMOD) and looks after the follow-up of the United Nations' Conference on Environment and Development (UNCED).The objectives are supported by a set of legislative and regulatory measures aiming at preservation, conservation and protection of environment as indicated above. The activities of this ministry can be broadly divided into four sub-sectors namely; Environment, Forestry and Wildlife, National Afforestation and Eco-development Board (NAEB) and the National River Conservation Directorate (NRCD).

The regulatory and institutional decision-making framework for environmental protection in India is embodied in nine major acts of the Indian Parliament.

These are: the Water (Prevention and Control of Pollution) Act of 1974 which established the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs);

the Air (Prevention and Control of Pollution) Act of 197 which added the monitoring of air emissions to the responsibilities of the various Boards; the Environment (Protection) Act of 1986; the Forest (Conservation) Act of 1980, amended in 1988; the Motor Vehicle Act of 1938, amended in 1988; the Public Liability Insurance Act of 1991; and Notifications on the Coastal Regulation Zone, 1991; and Environmental Impact Assessment of Development Projects, in 1994, the National Environment Appellate Authority Act, 1997.

Most of the above Acts and Notifications are aimed at strengthening the command-and control regime. New initiatives, especially in the form of a mix of regulations and legislation, fiscal incentives for technology acquisition, voluntary
agreements, educational programs and information campaigns are required. Although the government has introduced some of these measures, more is required because the regulatory structure of a central authority, the ministry of environment and forests (and other ministries) and the Central Pollution Control Board linked to state –level implementation agencies have proved to be largely unsuccessful in effectively managing the protection of the environment.

An assessment of India's environmental management system suggests that weaknesses are evident at every administrative level at the center, state and district. Further, despite aid under specific investment projects, more needs to be done in the area of industrial pollution, particularly air emissions, coastal zone management, urban land use including the citing of industries, and mitigating environmental degradation in the mining sector (9).

India, a diverse and rapidly developing nation, has long recognized the significance of environmental considerations in its economic planning and development. As a country with a vast and varied landscape, India faces a unique set of environmental challenges and opportunities. Balancing economic growth with environmental sustainability has been a central concern for India, and over the years, it has taken several significant steps to address these issues. This essay delves into the various environmental considerations integrated into India's economic planning and development.

- **Historical Perspective:** India's journey toward considering environmental

  aspects in economic planning can be traced back to its post-independence era. In the early years, development and industrialization took precedence over environmental concerns. However, as the adverse impacts of unregulated industrial growth and environmental degradation became increasingly evident, India started recognizing the importance of harmonizing development with environmental conservation. The 1970s marked a pivotal period when India began to enact environmental legislation. Laws like the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, were introduced to regulate the discharge of pollutants into air and water. These legal frameworks aimed to address the escalating environmental challenges caused by industrial activities.

- **Legal and Regulatory Framework:** India has since developed a robust legal and regulatory framework for environmental protection and conservation. Key legislations include the Environment (Protection) Act, 1986, which provides the government with the authority to take necessary measures to protect and improve the quality of the environment.

- The National Green Tribunal (NGT) was established in 2010 as a specialized environmental court to adjudicate environmental cases and expedite justice in matters related to environmental protection. The Forest (Conservation) Act, 1980, plays a vital role in safeguarding India's forest cover. It requires the central government's approval for diversion of forestland for non-forest purposes. This legislation is aimed at maintaining the ecological balance and protecting the rich biodiversity of the country. The Biological Diversity Act, 2002, focuses on the conservation of biodiversity and the sustainable use of biological resources. It includes provisions for the equitable sharing of benefits arising from the use of traditional knowledge and genetic resources.
- **Environmental Impact Assessment (EIA):** One of the essential components of India's approach to environmental planning is the Environmental Impact Assessment (EIA) process. EIA is a systematic process that evaluates the potential environmental impacts of a proposed project or development before it is approved and executed. It helps identify risks and suggests mitigation measures to address these concerns.
- EIA has been integrated into various sectors, such as industry, infrastructure, and mining. Project proponents are required to conduct EIA studies and obtain environmental clearances from the Ministry of Environment, Forest and Climate Change (MoEFCC) before commencing their activities. The EIA process encourages sustainable development by considering environmental aspects in the decision-making process.
- **Protected Areas and Biodiversity Conservation**: India boasts a rich and diverse natural heritage. To protect and conserve its unique ecosystems and biodiversity, the country has established a network of protected areas, including national parks, wildlife sanctuaries, and biosphere reserves.

- These areas serve as critical habitats for endangered species and help maintain ecological balance. For instance, the Sundarbans in West Bengal is home to the Royal Bengal Tiger and a significant mangrove ecosystem. It has been designated as a UNESCO World Heritage Site and a Ramsar Wetland of International Importance, emphasizing the need to protect this crucial biodiversity hotspot. The Kaziranga National Park in Assam is known for its population of Indian rhinoceros. Conservation efforts in this park have helped in reviving the rhino population and preserving this endangered species.

- **Renewable Energy and Energy Efficiency:** India recognizes the importance of transitioning toward cleaner and more sustainable energy sources. The country has made significant strides in promoting renewable energy, including solar, wind, and hydropower. The National Solar Mission aims to generate 100 GW of solar power by 2022, reflecting India's commitment to harnessing solar energy as a clean and abundant resource.
  The Wind Power Program promotes wind energy generation, with states like Tamil Nadu, Gujarat, and Maharashtra emerging as leaders in wind energy capacity. Additionally, hydropower projects have been developed across the country, with a focus on sustainable and eco-friendly dam designs. In addition to renewable energy, India places importance on energy efficiency. The Perform, Achieve, and Trade (PAT) scheme, under the Bureau of Energy Efficiency (BEE), encourages industries to improve energy efficiency and reduce emissions. India has also initiated programs like the Standards & Labeling Program to promote energy-efficient appliances and equipment

- **Waste Management and Sanitation:** India has launched ambitious initiatives to address waste management and sanitation challenges. The Swachh Bharat Abhiyan (Clean India Mission) is one of the largest cleanliness drives in the world. It focuses on improving sanitation and waste management practices, with the goal of making India open defecation-free. The mission emphasizes responsible waste disposal and aims to transform India's cities and villages into clean and hygienic spaces. Additionally, the Solid Waste Management Rules, 2016, provide guidelines for the proper disposal and treatment of solid waste. They encourage the segregation of waste at the source, recycling, and the development of waste-to-energy projects.

- **Climate Change Mitigation and Adaptation:** India acknowledges the grave threats posed by climate change and is actively engaged in efforts to mitigate its impact. The National Action Plan on Climate Change (NAPCC) outlines the country's strategies for addressing climate change. These strategies include enhancing energy efficiency, expanding solar and wind power capacity, and promoting sustainable agriculture and water resource management. India has also set ambitious targets for increasing its forest and tree cover to combat deforestation and absorb carbon dioxide. Initiatives like the Green India Mission focus on afforestation and reforestation activities to enhance the green cover.

- **Water Resource Management:** Efficient water resource management is crucial for India's sustainable development. The National Water Policy recognizes the need to manage and protect water resources, ensuring their availability for current and future generations.

- Programs like the Atal Bhujal Yojana focus on sustainable groundwater management, particularly in regions facing water scarcity.

- **Smart Cities and Urban Development:** India's urbanization is on the rise, and the Smart Cities Mission seeks to promote sustainable urban development. It encourages green infrastructure, efficient public transportation, waste management, and digital technologies for improved urban living. The mission emphasizes the development of urban areas that are environmentally friendly and technologically advanced.

- **Corporate Responsibility and Green Initiatives:** Many companies in India have adopted Corporate Social Responsibility (CSR) initiatives, which often include environmental sustainability as a core component. Companies invest in eco-friendly technologies, environmental conservation, and community engagement to contribute to sustainable development. These initiatives extend beyond regulatory compliance and aim to make a positive impact on the environment and society.

- **Community Participation:** Environmental planning in India emphasizes community participation in decision-making processes. Local communities are actively involved in natural resource management, afforestation, and environmental conservation initiatives. Their engagement is vital in ensuring the success of such programs and promotes a sense of ownership and responsibility.

- **Research and Innovation:** India encourages research and innovation in eco- friendly technologies, waste reduction, and clean energy solutions. Innovations in these areas are essential for achieving sustainable development goals and addressing environmental challenges.

- **Education and Awareness:** Environmental education and awareness campaigns are integral to India's approach to economic planning and development. Public awareness programs inform citizens about the importance of environmental conservation, sustainable practices, and the need for responsible resource management.

- **International Cooperation:** India actively engages in international environmental agreements and partnerships. The country collaborates with other nations on issues like climate change, biodiversity conservation, and sustainable development. Participation in global initiatives enhances India's capacity to address transboundary environmental challenges.

- **Green Finance:** India has been exploring the concept of green finance, encouraging investments in environmentally sustainable projects and technologies. This financial approach aims to channel resources into initiatives that have a positive environmental impact.

India's approach to economic planning and development has evolved over the years to encompass a comprehensive set of environmental considerations. The nation recognizes that economic growth must go hand in hand with environmental sustainability and conservation. The legal and regulatory framework, including environmental impact assessment, plays a pivotal role in ensuring responsible development practices. India is committed to protecting its biodiversity, promoting renewable energy, addressing climate change, managing water resources efficiently, and enhancing urban development in an eco-friendly manner.

Corporate responsibility, community participation, research, and awareness programs complement these efforts. India's dedication to environmental considerations is not only crucial for its sustainable development but also serves as an example for other nations facing similar challenges.

CHECK YOUR PROGRESS

Q. How does the Perform, Achieve, and Trade (PAT) scheme contribute to India's environmental goals?

A) By regulating industrial growth
B) By promoting air pollution
C) By improving energy efficiency and reducing emissions
D) By encouraging deforestation

Q. In the context of India's environmental planning, what is the Smart Cities Mission primarily focused on?

A) Reducing energy efficiency
B) Promoting rural development
C) Achieving sustainable urban development
D) Encouraging open defecation

Q. What does the National Water Policy in India aim to achieve?

A) Promoting water scarcity
B) Efficient water resource management and protection
C) Encouraging wasteful water use
D) Regulating groundwater access

Q. Why is community participation essential in India's environmental planning and development?

A) To reduce community involvement in decision-making
B) To protect traditional knowledge
C) To enhance the sense of responsibility and ownership
D) To promote industrial growth

Q: Explain the significance of integrating environmental considerations into economic planning and development in India. How does this approach contribute to sustainable development?

Q: Discuss the role of legislation and regulatory frameworks in India's Approach to environmental considerations in economic planning. Provide examples of key environmental laws and their significance.

Q: Describe the role of the National Green Tribunal (NGT) in India's Environmental governance. How does the NGT contribute to addressing environmental concerns and ensuring justice in environmental matters?

Q: Explain the significance of India's renewable energy and energy efficiency initiatives in the context of economic planning and environmental considerations. Provide examples of programs and policies in these areas.

Q: Discuss the objectives and impact of India's Swachh Bharat Abhiyan (Clean India Mission) in the context of waste management and sanitation. How does this initiative contribute to environmental considerations in economic planning?

3.5 NATIONAL COMMITTEE ON ENVIRONMETAL PLANNING (NCEP) AND DISTRICT ENVIRONMETAL COMMITTEE

3.5.1 NATIONAL COMMITTEE ON ENVIRONMENTAL PLANNING (NCEP):

The National Committee on Environmental Planning (NCEP) is a vital institution established to oversee and guide environmental planning and policies at the national level. NCEP plays a pivotal role in promoting sustainable development, ensuring environmental protection, and balancing economic growth with environmental conservation in a country. In this essay, we will delve into the functions, structure, and significance of NCEP in the context of environmental planning.

Functions of NCEP:

- **Policy Formulation:** One of the primary functions of NCEP is to participate in the formulation of national environmental policies. It acts as an advisory body, providing insights and recommendations for the development of policies that consider environmental sustainability.
- **Strategic Planning:** NCEP is responsible for developing strategic plans and frameworks for environmental conservation and sustainable development. It
  helps chart the course for the nation's environmental efforts over a defined period, outlining goals and objectives.
- **Environmental Impact Assessment (EIA):** NCEP plays a role in overseeing and reviewing Environmental Impact Assessment reports for major development projects. It ensures that proposed projects are in line with environmental regulations and standards.

- **Legislation and Regulations**: NCEP collaborates with relevant government agencies to propose and amend environmental legislation and regulations as needed. It helps ensure that the legal framework is up-to-date and effective in protecting the environment.
- **International Cooperation:** NCEP represents the country in international environmental forums and collaborates with other nations to address global environmental challenges. It plays a crucial role in negotiating and implementing international environmental agreements.
- **Data and Research:** NCEP is involved in collecting and analyzing environmental data, which is essential for informed decision-making. It supports research on various environmental issues and trends.
- **Awareness and Education**: NCEP works on raising public awareness and education regarding environmental issues. It develops and promotes campaigns and programs to engage citizens in environmental conservation.
- **Capacity Building:** NCEP is responsible for enhancing the capacity of government agencies, non-governmental organizations, and other stakeholders involved in environmental planning and conservation.

Structure of NCEP:

The structure of NCEP typically includes representatives from various government departments, non-governmental organizations, and experts in the field of environmental science and policy. It is often chaired by a high-ranking government official responsible for environmental affairs, such as the Minister of Environment.

- **Chairperson:** The chairperson is usually a government minister responsible for the environment. They provide leadership and oversee the committee's activities.
- **Government Representatives**: Various government departments that play a role in environmental planning and conservation, such as the Ministry of Environment, Ministry of Agriculture, and Ministry of Forestry, are represented in NCEP.
- **Experts:** NCEP includes experts in the field of environmental science, law, economics, and policy. These experts provide technical knowledge and guidance to the committee.
- **Non-Governmental Organizations (NGOs):** NCEP often includes representatives from environmental NGOs and civil society groups. These
  representatives bring a civil society perspective and advocate for environmental protection.
- **Private Sector Representatives:** In some cases, private sector representatives, especially those from industries with a significant environmental impact, may be part of NCEP to ensure a balanced approach to economic and environmental interests.

Significance of NCEP:

The National Committee on Environmental Planning holds significant importance for several reasons:

- **Integrated Environmental Policy:** NCEP promotes the development of integrated environmental policies that consider economic, social, and ecological aspects. This integrated approach is crucial for sustainable development.
- **Balancing Interests**: NCEP acts as a platform for balancing the interests of different stakeholders, including government agencies, private sector entities, and environmental organizations, ensuring that the environment's inter ests are safeguarded.

- **Guiding Sustainable Development:** NCEP plays a crucial role in guiding the nation's development in an environmentally sustainable direction. It helps identify and mitigate potential environmental risks associated with various projects and policies.
- **International Representation:** NCEP represents the country in international environmental forums and negotiations. It ensures that the nation's interests and commitments in the global environmental arena are effectively communicated and upheld
- **Research and Data:** NCEP's involvement in research and data collection contributes to informed decision-making. It supports evidence-based policies and strategies for environmental conservation.
- **Environmental Education:** NCEP's role in awareness and education helps educate citizens about environmental issues and encourages them to participate in conservation efforts.

The National Committee on Environmental Planning (NCEP) is a crucial institution responsible for shaping environmental policies, strategies, and regulations at the national level. It plays a pivotal role in promoting sustainable development, protecting the environment, and representing the country in international environmental forums. NCEP's integrated and multidisciplinary approach ensures that economic growth is balanced with environmental conservation and social well- being.

3.5.2 DISTRICT ENVIRONMENTAL COMMITTEE

The District Environmental Committee (DEC) is a local-level institution established to address environmental issues, promote sustainable development, and ensure that environmental considerations are integrated into decision-making at the district level.

DEC plays a critical role in addressing region-specific environmental challenges and fostering community engagement in environmental conservation. In this essay, we will explore the functions, structure, and significance of DEC within the context of local environmental governance.

Functions of DEC:

- **Environmental Planning:** DEC is responsible for formulating and implementing environmental plans and strategies at the district level. It assesses local environmental issues and develops action plans to address them.
- **Environmental Impact Assessment (EIA):** DEC reviews and assesses Environmental Impact Assessment reports for local development projects. It ensures that proposed projects comply with environmental regulations and do not harm the local ecosystem.
- **Waste Management:** DEC oversees and promotes proper waste management practices within the district. It may be involved in organizing waste collection, recycling, and disposal initiatives.
- **Biodiversity Conservation:** DEC plays a role in preserving and protecting local biodiversity. It may identify and manage biodiversity-rich areas, including wetlands, forests, and wildlife habitats
- **Environmental Education:** DEC conducts awareness and educational programs to inform local communities about environmental issues, sustainable practices, and the importance of conservation.
- **Public Participation:** DEC encourages community involvement in environmental decision-making. It conducts public consultations and seeks input from local residents on environmental matters.

- **Monitoring and Enforcement:** DEC monitors compliance with local environmental regulations and enforces environmental laws within the district. It may issue permits and licenses for various activities, ensuring they meet environmental standards.
- **Emergency Response:** DEC plays a role in disaster preparedness and response, especially in the context of natural disasters or environmental emergencies.

Structure of DEC:

The structure of District Environmental Committees can vary from one district to another, depending on local needs and administrative arrangements. However, a typical DEC structure may include the following components:

- **District Collector or Commissioner:** The head of the district administration often serves as the chairperson of the DEC. They provide leadership an oversight.
- **Local Government Representatives:** Elected officials from local governments, such as municipal authorities and panchayats, are often part of DEC, as they have a direct stake in local environmental issues.
- **Environmental Experts:** DEC may include environmental experts, scientists, and researchers who offer technical guidance on environmental matters.
- **Non-Governmental Organizations (NGOs):** Representatives from local environmental NGOs and community-based organizations may be included to provide civil society input.
- **Community Representatives:** DEC often includes members of the local community who represent various interests and stakeholder groups. Their input ensures that decisions reflect the needs and concerns of the people.
- **Government Department Officials:** Representatives from various government departments, such as environmental

protection agencies, health departments, and forestry departments, may serve as members, providing technical expertise and coordination.

Significance of DEC:

The District Environmental Committee holds significant importance for several reasons:

- **Local Relevance:** DEC addresses environmental issues specific to the district, considering the unique challenges and resources of the local environment.
- **Community Engagement:** DEC encourages community participation in environmental decision-making, fostering a sense of ownership and responsibility among local residents.
- **Quick Response:** DEC can respond more swiftly to local environmental emergencies and challenges, as it is closely connected to the district's needs and realities.
- **Implementation of National Policies:** DEC plays a key role in implementing national environmental policies and regulations at the local level, ensuring that they are enforced effectively.
- **Awareness and Education:** DEC's educational initiatives help raise awareness about environmental issues and promote sustainable practices among local communities.
- **Effective Waste Management:** DEC's involvement in waste management contributes to a cleaner and healthier local environment, reducing the risks associated with improper waste disposal.
- **Biodiversity Conservation:** DEC plays a role in preserving local biodiversity, safeguarding critical ecosystems within the district.

The District Environmental Committee (DEC) is a vital local-level institution responsible for addressing environmental issues, promoting sustainable development,

and engaging local communities in environmental conservation. DEC' ability to address region-specific challenges and foster community participation makes it a crucial component of environmental governance at the district level.

CHECK YOUR PROGRESS

Q. What is one of the key functions of NCEP in the context of environmental planning?

A) Monitoring local waste management practices

B) Representing India in international environmental forums

C) Developing strategic plans for sustainable development

D) Promoting deforestation for economic growth

Q. Why is NCEP's involvement in data collection and analysis significant?

A) It supports informed decision-making.

B) It generates revenue for the government.

C) It enforces environmental regulations.

D) It promotes industrial growth.

Q. Why is community participation crucial in the DEC's activities?

A) To promote deforestation

B) To ensure the enforcement of national laws

C) To engage local residents in environmental decision-making

D) To raise revenue for the district

Q. What is a significant advantage of DEC's quick response to local environmental issues?

A) It allows for a more integrated approach to environmental planning.

B) It fosters international collaboration on environmental issues.

C) It promotes deforestation.

D) It addresses region-specific challenges effectively.

Q: Explain the role and functions of the National Committee on Environmental Planning (NCEP) in the context of India's environmental governance. How does NCEP contribute to sustainable development?

Q: Describe the structure of the National Committee on Environmental Planning (NCEP) in India. What are the key components and their roles within NCEP?

Q: Explain the functions and significance of District Environmental Committees (DECs) in local environmental governance. How do DECs contribute to addressing region-specific environmental challenges?

3.6 LET US SUM UP

- India recognizes the importance of integrating environmental considerations into economic planning and development to achieve sustainable growth.
- Various environmental policies, laws, and regulations are in place to ensure responsible resource management and environmental protection.
- Key environmental legislation in India includes the Water (Prevention and Control of Pollution) Act, Air (Prevention and Control of Pollution) Act, Environment (Protection) Act, and Biological Diversity Act.
- Initiatives like the National Solar Mission promote renewable energy sources, reduce emissions, and address climate change.
- Swachh Bharat Abhiyan (Clean India Mission) focuses on improving sanitation, waste management, and open defecation-free environments.
- The Perform, Achieve, and Trade (PAT) scheme encourages industries to improve energy efficiency and reduce emissions.

- The Smart Cities Mission aims to achieve sustainable urban development, including green infrastructure and efficient resource management.
- The National Water Policy focuses on efficient water resource management and protection.
- Community participation is essential in environmental planning to enhance a sense of responsibility and ownership.
- Environmental education and awareness campaigns inform citizens about conservation, sustainable practices, and responsible resource management.
- NCEP is a national-level institution that formulates and advises on environmental policies, ensuring integrated and sustainable development.
- NCEP is chaired by a government minister responsible for the environment and comprises representatives from various government departments, experts, NGOs, and private sector entities.
- NCEP plays a role in strategic planning, environmental impact assessment, legislation, international cooperation, data analysis, awareness campaigns, and capacity building.
- DECs are local-level institutions responsible for addressing environmental issues, promoting sustainable development, and engaging local communities in decision-making.
- DECs are often chaired by the District Collector or Commissioner and include representatives from local government, experts, NGOs, community members, and government department officials.
- DECs function in environmental planning, EIA, waste management, biodiversity conservation, education, public participation, monitoring, and emergency response.
- DECs are significant for their local relevance, community engagement, quick response to local environmental issues, and effective implementation of national policies.

3.7 FURTHER READING

1. Define environmental policy and provide examples of key components typically found in environmental policies.
2. Explain the role of government agencies in the formulation and implementation of environmental policies.
3. Briefly discuss the concept of sustainable development and its relevance to environmental policy.
4. Identify and explain a specific environmental policy that has had a significant impact on conservation efforts.
5. How do international agreements and treaties contribute to shaping national environmental policies?
6. Examine the evolution of environmental policy over the past few decades. Highlight key milestones and shifts in policy priorities.
7. Analyze the effectiveness of a specific environmental policy in addressing a critical environmental issue. Discuss the challenges faced during implementation and potential improvements.
8. Discuss the role of public participation in the development and implementation of environmental policies. How can policymakers ensure inclusivity and transparency in the decision-making process?
9. Explore the relationship between environmental policies and social justice. How can policies be designed to address environmental issues while promoting equity and fairness among diverse communities?
10. Evaluate the impact of globalization on national environmental policies. Discuss the challenges and opportunities posed by global interconnectedness in the context of environmental conservation

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UNIT 4 : STATE OF INDIA'S ENVIRONMENT

UNIT STRUCTURE

4.1 Learning Objectives

4.2 Introduction

4.3 State Of India's Environmental With Respect To Land, Forest , Atmosphere, Hydrosphere, Dam

- 4.3.1 State Of India's Environmental With Respect To Land
- 4.3.2 State Of India's Environmental With Respect To Forest
- 4.3.3 State Of India's Environmental With Respect To Atmosphere
- 4.3.4 State Of India's Environmental With Respect To Hydrosphere
- 4.3.5 State Of India's Environmental With Respect To Dams

4.4 State Of India's Environmental With Respect Environmental Health, Habitat, People & Environment

- 4.4.1 State Of India's Environmental With Respect Environmental Health
- 4.4.2 State Of India's Environmental With Respect Environmental Habitat
- 4.4.3 State Of India's Environmental With Respect Environmental People & Environmental

4.5 Renewable & Non-Renewable Resources

- 4.5.1 Renewable Resources
- 4.5.2 Non-Renewable Resources

4.6 Let us Sum up

4.7 Further Reading

4.1 LEARNING OBJECTIVES

After successful completion of this unit, you will be able to

- Analyze and evaluate the major environmental challenges faced by India
- Examine the effectiveness of existing environmental policies and regulations in India
- Develop skills to access and interpret environmental data and reports from government agencies and non-governmental organizations to assess environmental conditions and trends.
- Explore the impact of climate change on India and evaluate sustainability initiatives
- Explore the role of civil society organizations, advocacy groups, and citizen engagement in shaping environmental policies and regulations in India. irresponsible disposal of radioactive from a remote energy plant in one country may turn out to have greater of full-fledged war.

4.2 INTRODUCTION

The "State of India's Environment" serves as a crucial and comprehensive assessment of the environmental conditions, challenges, and policies in the country. This assessment offers valuable insights into the complex interplay between India's development and environmental sustainability. It serves as a vital resource for policymakers, environmentalists, researchers, and the general public, providing a holistic view of the nation's environmental health.

India, with its vast and diverse landscapes, faces a myriad of environmental challenges ranging from air and water pollution to deforestation, habitat loss, and climate change. These challenges are often intertwined with the nation's ambitious goals for economic growth, infrastructure development, and poverty alleviation.

As a result, India's environmental policies and regulations have to balance the imperatives of development with the imperative to protect the environment for future generations.

The "State of India's Environment" unit delves into the current status of India's environment by examining key environmental indicators, policy frameworks, and their implications. It explores the impact of various sectors, including industry, agriculture, and urbanization, on the environment and assesses the effectiveness of existing policies in addressing environmental concerns. In addition to providing a snapshot of the present, this unit also considers the long-term implications of India's environmental choices. It explores how the country is responding to global challenges such as climate change and sustainability and how it is striving to meet international commitments, including the Sustainable Development Goals.

Throughout this unit, students will gain a deeper understanding of India's environmental landscape, its policy evolution, and the critical role of environmental education and advocacy in shaping a more sustainable future. The "State of India's Environment" unit serves as a foundation for informed decision-making, responsible citizenship, and active participation in the ongoing effort to balance development and environmental preservation in one of the world's most dynamic and populous nations.

4.3 STATE OF INDIA'S ENVIRONMENT WITH RESPECT TO LAND, FOREST, ATMOSPHERE, HYDROSPHERE, DAM

4.3.1 STATE OF INDIA'S ENVIRONMENT WITH RESPECT TO LAND

India's land is diverse and plays a pivotal role in the country's economic, social, and environmental well-being. With a wide range of land uses, including agriculture, urbanization, forests, wetlands, and wastelands, the state of India's land is of great significance. Key aspects related to land in India include:

- **Agricultural Land:** Agriculture remains a cornerstone of India's economy, employing a large percentage of the population. Sustainable land management in agriculture is crucial for food security.
- **Land Degradation:** Land degradation, including soil erosion, salinization, and desertification, affects a significant portion of India's land. Unsustainable agricultural practices, deforestation, and improper land management contribute to this issue.
- **Forest Land:** India's forests are critical for biodiversity conservation, carbon sequestration, and ecosystem services. Deforestation, illegal logging, and habitat loss pose significant threats.
- **Urbanization and Infrastructure Development:** Rapid urbanization and infrastructure development lead to land conversion, habitat loss, and fragmentation. Sustainable urban planning is essential to mitigate these impacts.
- **Land Policies and Regulations:** India has a legal framework that regulates land use, acquisition, and environmental protection. Balancing the needs of development with environmental conservation is an ongoing challenge.

- **Land Rights and Tenure:** Land rights and land tenure issues are prominent in India, with implications for resource management and sustainable development. The rights of indigenous and marginalized communities to land are significant considerations.
- **Land-Based Conflicts**: Disputes and conflicts over land often arise due to competing interests, necessitating resolution while ensuring fairness and sustainability.
- **Land Restoration and Conservation**: India has implemented initiatives such as afforestation programs and soil conservation efforts to combat land degradation.
- **Sustainable Land Management:** Encouraging sustainable land management practices, including crop rotation and organic farming, is essential to address land-related challenges.

4.3.2 STATE OF INDIA'S ENVIRONMENT WITH RESPECT TO FOREST:

Forests in India are diverse, ranging from tropical to temperate, and play a crucial role in biodiversity conservation, climate regulation, and livelihoods. Key points related to the state of India's forests include:

- **Forest Biodiversity:** India is home to diverse plant and animal species. Forests are vital for preserving this biodiversity and supporting ecological balance.
- **Deforestation:** Deforestation due to activities like logging, agriculture expansion, and infrastructure development threatens India's forests.
- **Protected Areas:** India has established protected areas, wildlife sanctuaries, and biosphere reserves to conserve its rich biodiversity.

- **Sustainable Forest Management:** Sustainable forest management practices are essential to ensure long-term forest health and productivity.
- **Community Involvement**: Indigenous and local communities play a significant role in forest protection and sustainable resource management.
- **Conservation vs. Development:** Balancing conservation goals with development imperatives is an ongoing challenge. Conflict arises between forest conservation and developmental interests.
- **Afforestation and Reforestation**: India has implemented afforestation and reforestation programs to increase forest cover and combat deforestation.
- **Climate Change and Forests**: Climate change poses a threat to India's forests, affecting temperature and rainfall patterns. Adaptation strategies are essential.
- **International Commitments:** India is a signatory to international agreements such as the Convention on Biological Diversity, shaping its forest policies.
- **Forest Monitoring**: Remote sensing and satellite technologies aid in monitoring forest cover and changes.

4.3.3 STATE OF INDIA'S ENVIRONMENT WITH RESPECT TO ATMOSPHERE:

India's atmosphere is impacted by air quality, pollution, and climate change. Air quality, both indoor and outdoor, is a significant concern. Key points related to the state of India's atmosphere include:

- **Air Quality:** Many urban areas in India face poor air quality due to factors like vehicular emissions, industrial pollution, and construction activities.

- **National Clean Air Programme:** India has launched the National Clean Air Programme to address air pollution and improve air quality.

- **Indoor Air Pollution:** Indoor air pollution, primarily from solid fuel use for cooking and heating, has adverse effects on public health.

- **Climate Change:** Climate change presents challenges such as extreme weather events, rising temperatures, and sea-level rise.

- **Climate Agreements:** India is committed to international climate agreements, including the Paris Agreement, and is working on reducing emissions and adapting to climate change.

- **Renewable Energy:** Initiatives like the National Solar Mission aim to reduce greenhouse gas emissions by promoting renewable energy sources.

- **Monsoons and Agriculture:** Monsoons are crucial for Indian agriculture, and climate change can impact rainfall patterns, affecting crop yields.

- **Adaptation and Disaster Management:** India is focusing on adaptation strategies and disaster management to mitigate the impacts of climate change.

- **Air Quality Monitoring**: India has established air quality monitoring networks and enforcement measures to reduce air pollution.

4.3.4 STATE OF INDIA'S ENVIRONMENT WITH RESPECT TO HYDROSPHERE:

India's hydrosphere includes rivers, lakes, wetlands, and coastal areas. The state of India's hydrosphere is marked by water scarcity, pollution, and habitat degradation. Key points related to the state of India's hydrosphere include:

- **River Systems**: India's major rivers are under stress due to pollution, over- extraction, and industrial discharges.
- **Water Quality:** Water quality issues affect public health and ecosystems.
- **National Water Policy:** The National Water Policy aims to achieve efficient water resource management and equitable water distribution.
- **Wetlands**: Wetlands are vital for biodiversity conservation and flood control but face threats from urbanization and pollution.
- **Coastal Areas**: India's coastal areas are vulnerable to sea-level rise and climate change, impacting communities and infrastructure.
- **Water Disputes**: Water disputes among states necessitate resolution, often through the intervention of relevant authorities.
- **Dams and Reservoirs:** Dams and reservoirs play a crucial role in water storage, hydropower generation, and flood control. Their environmental impacts need careful management.
- **Agriculture and Irrigation:** India's rivers are essential for agriculture and irrigation, supporting food production.

4.3.5 STATE OF INDIA'S ENVIRONMENT WITH RESPECT TO DAMS:

Dams and reservoirs are integral to India's water management, providing benefits such as water storage, hydropower generation, and flood control. Key points related to the state of dams in India include:

- **Water Storage and Management:** Dams play a significant role in water storage, ensuring a stable water supply for agriculture and other sectors.
- **Hydropower Generation**: Hydropower generated from dams contributes to India's energy needs and clean energy goals.
- **Flood Control:** Dams help mitigate the impact of floods, protecting
  downstream areas and infrastructure.
- **Environmental Impacts**: Dam construction and operation can alter river
  ecosystems, affect downstream areas, and lead to habitat loss.
- **Sedimentation:** Sedimentation in reservoirs can reduce their water storage capacity over time, necessitating periodic management.
- **Community Displacement:** The construction of dams can displace
  communities, affecting their livelihoods and requiring resettlement.
- **Environmental Flow:** Maintaining environmental flow downstream of dams is essential to sustain river ecosystems and support biodiversity.
- **Safety and Monitoring:** Ensuring the safety of dams and regular monitoring are critical for their effective operation.
- **Environmental Assessments:** Comprehensive environmental impact assessments (EIA) are conducted for dam projects to evaluate their effects.

CHECK YOUR PROGRESS

Q. Which of the following legal frameworks regulates land use and acquisition in India?

a) Forest (Conservation) Act

b) Clean Air Act

c) National Water Policy

d) Land Acquisition Act

Q. Which international agreement focuses on biodiversity conservation and shapes India's forest policies?

a) Paris Agreement

b) Kyoto Protocol

c) Convention on Biological Diversity

d) Montreal Protocol Answer:

Q. How does climate change impact India's forests and atmosphere?

a) It has no impact on India's environment

b) It leads to increased rainfall and cooler temperatures

c) It results in extreme weather events and rising temperatures

d) It enhances air quality

Q. India's coastal areas are vulnerable to what impact?

a) Temperature fluctuations

b) Sea-level rise and climate change

c) Desertification

d) Improved infrastructure

Q. What is the primary goal of maintaining environmental flow downstream of dams?

a) To prevent wildlife intrusion

b) To ensure a steady water supply

c) To support river ecosystems and biodiversity

d) To improve water quality

Q: Explain the concept of land degradation in India. Discuss the major causes and consequences of land degradation, and suggest strategies for its mitigation.

Q: Discuss the role of land tenure systems in India and their impact on land use and environmental conservation. Provide examples of how land rights affect land management.

Q: Describe the significance of India's forest ecosystems for biodiversity conservation and climate change mitigation. Discuss the major threats to India's forests and the measures taken to protect them.

Q: Analyze the conflicts between forest conservation and development projects in India. Provide examples of such conflicts and discuss the strategies to strike a balance between conservation and development.

Q: Discuss the major sources and impacts of air pollution in India. Explain the key initiatives and policies implemented to address air quality issues.

Q: How does climate change impact India's atmosphere, and what adaptation strategies are being adopted? Explain India's commitments to international climate agreements.

Q: Analyze the water-related challenges faced by India's major rivers. Discuss issues such as over-extraction, pollution, and inter-state water disputes. How can India ensure sustainable water management

Q: Describe the role of dams in India's hydrosphere and the environmental impacts associated with dam construction. How can these impacts be mitigated for sustainable dam projects?

4.4 STATE OF INDIA'S ENVIRONMENT WITH RESPECT TO ENVIRONMENTAL HEALTH, HABITAT, PEOPLE & ENVIRONMENT

4.4.1 STATE OF INDIA'S ENVIRONMENT WITH RESPECT TO ENVIRONMENTAL HEALTH:

India's environmental health encompasses various factors that impact the well-being of its population. Environmental health is influenced by factors such as air and water quality, sanitation, industrial pollution, and lifestyle choices. Here are key points to consider regarding the state of India's environment concerning environmental health:

- **Air Quality:** India faces significant air quality challenges in many urban areas due to factors like vehicular emissions, industrial pollution, and construction activities. Poor air quality contributes to respiratory diseases and health issues.
- **Water Quality:** Contaminated water sources pose serious health risks. Access to safe drinking water is a concern, especially in rural areas. Polluted water sources lead to waterborne diseases.
- **Sanitation:** Access to proper sanitation facilities, including toilets and sewage systems, is crucial for preventing waterborne diseases. Open defecation remains a challenge in some regions.
- **Industrial Pollution:** Industries often contribute to environmental pollution, affecting the health of nearby communities. Proper waste disposal and emissions control are vital.
- **Vector-Borne Diseases:** Environmental factors like stagnant water bodies can contribute to the prevalence of vector-borne diseases such as malaria and dengue.
- **Climate Change and Health:** Climate change can lead to health impacts such as heat stress, the spread of diseases, and changing disease vectors.
- **Public Health Initiatives**: Initiatives like the National Clean Air Programme and Swachh Bharat Abhiyan aim to improve environmental health.

- **Healthcare Infrastructure:** Adequate healthcare facilities and access to healthcare services are essential to address environmental health challenges.

4.4.2 STATE OF INDIA'S ENVIRONMENT WITH RESPECT TO HABITAT:

Habitat refers to the living environment of various species, including humans. In India, habitat encompasses urban, rural, and natural settings, each with its unique environmental challenges. Here are key points to consider regarding the state of India's environment concerning habitat:

- **Urban Habitat:** Rapid urbanization and population growth have led to increased demand for urban infrastructure and housing. Managing urban expansion and providing sustainable habitats are essential.
- **Rural Habitat**: Rural habitats are vital for agriculture and livelihoods. Land management, irrigation, and access to resources affect rural living conditions.
- **Housing and Slums:** Access to adequate housing is a concern, and the growth of slums in urban areas presents challenges related to sanitation, access to services, and living conditions.
- **Habitat Destruction:** Deforestation, urban development, and industrialization can lead to habitat destruction, impacting biodiversity and ecosystems.
- **Habitat Conservation:** Conservation efforts, such as protected areas, biosphere reserves, and wildlife sanctuaries, aim to protect natural habitats.
- **Biodiversity**: India's diverse habitats are home to a wide range of plant and animal species, making biodiversity conservation a priority.
- **Disaster Resilience:** Natural disasters, such as floods, cyclones, and earthquakes, impact habitat and require disaster management and preparedness.

- **Sustainable Habitat:** Balancing the need for development with habitat conservation is an ongoing challenge. Sustainable urban planning and land-use policies are essential.

4.4.3 STATE OF INDIA'S ENVIRONMENT WITH RESPECT TO PEOPLE & ENVIRONMENT:

The relationship between people and the environment in India is complex and intertwined. Human activities impact the environment, and environmental conditions, in turn, affect human well-being. Here are key points to consider regarding the state of India's environment concerning the relationship between people and the environment:

- **Population Pressure:** India's large and growing population exerts significant pressure on natural resources, land, and water.
- **Livelihoods:** Many people in India rely on natural resources for their livelihoods, including agriculture, forestry, and fishing.
- **Environmental Awareness**: Increasing environmental awareness and education are essential for promoting sustainable practices and conservation.
- **Traditional Knowledge:** Indigenous and local communities often possess traditional knowledge about sustainable resource management.
- **Urbanization:** Urban areas in India are hubs of economic activity but also contribute to pollution, habitat destruction, and displacement of communities.
- **Community-Based Conservation**: Involving communities in conservation efforts can lead to more sustainable and successful outcomes.
- **Environmental Policies**: Government policies and regulations impact the relationship between people and the environment. These policies can promote sustainability and resource management.

- **Social Equity:** Ensuring equitable access to environmental resources and benefits is crucial for social justice and sustainable development.

CHECK YOUR PROGRESS

Q. Open defecation is a concern for:

a) Environmental health
b) Habitat conservation
c) Biodiversity protection
d) Renewable energy

Q. Protected areas, biosphere reserves, and wildlife sanctuaries are conservation efforts aimed at protecting:

a) Urban areas
b) Rural habitats
c) Biodiversity and natural habitats
d) Industrial zones

Q. The relationship between people and the environment is influenced by:

a) Social equity
b) Bureaucratic policies
c) Economic isolation
d) Technological advancements

Q: Describe the major sources of air pollution in India and their impact on environmental health. Discuss government initiatives and policies aimed at improving air quality.

Q: Explain the importance of clean drinking water and proper sanitation for environmental health in India. Discuss the challenges related to access to clean water and sanitation facilities and the government's Swachh Bharat Abhiyan.

Q: Discuss the challenges associated with rapid urbanization in India and its impact on habitat. Describe the concept of sustainable urban planning and its significance.

Q: Analyze the role of protected areas, wildlife sanctuaries, and biosphere reserves in conserving habitat and biodiversity in India. Provide examples of such areas and their significance.

Q: Discuss the challenges posed by India's large and growing population on the environment. How can social equity and sustainable development principles address these challenges?

Q: Explain the concept of community-based conservation and its significance in the context of people and the environment. Provide examples of successful community-based conservation efforts in India.

4.5 RENEWABLE & NON–RENEWABLE RESOURCES

4.5.1 RENEWABLE RESOURCES:

Renewable resources are those natural resources that can be naturally replenished over time. These resources play a vital role in sustaining life on Earth and are essential for maintaining ecological balance. Here's a comprehensive description of renewable resources.

Renewable resources encompass a wide range of elements that are integral to life on Earth. They are distinguished by their capacity for natural replenishment, meaning they can be regenerated within a reasonable period. The utilization of renewable resources is often considered a sustainable practice as long as their rate of consumption does not exceed their rate of natural replenishment.

- **Solar Energy:**
  - **Description:** Solar energy is one of the most abundant and accessible renewable resources. It is harnessed from the sun's rays using various technologies like photovoltaic cells and solar panels.
  - **Importance:** Solar energy is clean, abundant, and versatile. It provides a sustainable and environmentally friendly source of electricity and heat.

- **Wind Energy:**
  - **Description**: Wind energy is generated by harnessing the kinetic energy of wind using wind turbines.

  - **Importance:** Wind energy is a clean and sustainable source of electricity. It reduces greenhouse gas emissions and dependence on fossil fuels.

  - **Hydropower:**
  - **Description:** Hydropower is generated by the kinetic energy of flowing water. It is commonly harnessed through the construction of dams and water turbines.
  - **Importance:** Hydropower is a reliable and renewable source of electricity. It contributes to grid stability and can store energy for later use.

  - **Biomass Energy:**
  - **Description**: Biomass energy is derived from organic materials like wood, crop residues, and waste. It can be used for heating, electricity generation, and biofuels.
  - **Importance:** Biomass energy is renewable and helps manage organic waste. It also reduces reliance on non-renewable fuels.

- **Geothermal Energy:**
  - **Description:** Geothermal energy is produced from the Earth's internal heat. It is harnessed by drilling wells to access hot water and steam.
  - **Importance:** Geothermal energy is a reliable and constant source of power. It reduces greenhouse gas emissions and air pollution.
- **Tidal and Wave Energy:**
  - **Description:** Tidal and wave energy are generated by the gravitational pull of the moon and sun and the movement of ocean water. Special devices capture this energy.
  - **Importance**: Tidal and wave energy have great potential to provide clean and reliable electricity, especially in coastal regions.
- **Biological Resources:**
  - **Description**: Biological resources include plant and animal species. They are essential for food, medicine, and genetic diversity.
  - **Importance:** Biological resources provide sustenance, contribute to biodiversity, and have immense cultural and ecological value.
- **Soil and Water Resources:**
  - **Description**: Soil and water are renewable resources that support agriculture, ecosystems, and human activities.
  - **Importance:** Soil and water are essential for food production, maintaining ecosystems, and ensuring water availability for various needs.
- **Air:**
  - **Description:** Air is a renewable resource that encompasses the Earth's atmosphere. It is crucial for breathing, climate regulation, and weather patterns.
  - **Importance:** Clean air is essential for human health, and the atmosphere.

4.5.2. NON-RENEWABLE RESOURCES:

Non-renewable resources are finite and cannot be naturally regenerated within a reasonable time frame. They are typically extracted from the Earth's crust and have limited availability. Here's a comprehensive description of non-renewable resources: Non-renewable resources, also known as finite resources, are elements that are exhaustible within a human time scale. These resources have played a significant role in powering human civilization, industry, and technology. However, their finite nature raises concerns about depletion, environmental impacts, and the need for transition to sustainable alternatives.

- **Fossil Fuels:**

➢ **Description:** Fossil fuels, including coal, oil, and natural gas, are derived from the remains of ancient plants and animals. They are the primary sources of global energy.

➢ **Importance**: Fossil fuels have been central to industrialization and transportation. However, their combustion releases greenhouse gases, contributing to climate change. Depletion of these resources is a growing concern.

- **Minerals and Metals:**

➢ **Description:** Minerals and metals like iron, copper, aluminum, and rare earth elements are essential for manufacturing, construction and technology.

➢ **Importance:** These resources are crucial for various industries, but their extraction can lead to habitat destruction, pollution, and resource depletion.

- **Nuclear Energy (Uranium):**

➢ **Description:** Nuclear energy is generated through the fission of uranium atoms in nuclear reactors.

➢ **Importance**: Nuclear energy is a low-carbon source of electricity, but concerns about nuclear accidents, radioactive waste, and uranium availability exist.

- **Fossil Groundwater:**

  ➢ **Description:** Fossil groundwater, often found in aquifers, is ancient water stored beneath the Earth's surface.

  ➢ **Importance**: Fossil groundwater is a critical source of freshwater for irrigation and drinking. However, over-pumping can deplete these finite reserves.

- **Phosphate and Potash:**

  ➢ **Description**: Phosphate and potash are essential for fertilizers, promoting agricultural productivity.

  ➢ **Importance:** These non-renewable resources play a crucial role in global food production. Sustainable use is essential to maintain agricultural yields.

- **Precious Metals and Gemstones:**

➢ **Description:** Precious metals like gold and gemstones have significant cultural and economic value.

➢ **Importance:** These resources are used for jewelry, currency, and industrial applications. Their mining can have environmental and social impacts.

- **Radioactive Minerals:**

➢ **Description**: Radioactive minerals, like thorium and radium, have uses in nuclear technologies and healthcare.

- **Importance**: While they have important applications, their handling and disposal require careful management due to radioactivity.

- **Non-Renewable Energy Resources:**

- **Description:** Non-renewable energy resources include shale gas, oil sands, and heavy oils, which are more challenging to extract and often have higher environmental impacts.
- **Importance:** These resources offer energy alternatives but may Require extensive processing, impacting ecosystems and water resources.

Renewable resources are essential for a sustainable and environmentally friendly future. They offer clean and reliable sources of energy, support biodiversity and ecosystem health, and provide essential services like clean air and water. Non- renewable resources, on the other hand, are finite and their extraction can lead to environmental degradation and resource depletion. Transitioning to sustainable alternatives and responsible resource management are key strategies to address these challenges and ensure a sustainable future.

CHECK YOUR PROGRESS

Q. Geothermal energy is produced from:

a) Wind turbines

b) Earth's internal heat

c) Solar panels

d) Tidal waves

Q. Tidal and wave energy are primarily generated by the:

a) Gravitational pull of the moon and sun

b) Geothermal heat from the Earth's core

c) Kinetic energy of wind

d) Radiation from the sun

Q. What is a significant environmental concern associated with the extraction of fossil groundwater?

a) Radioactive contamination

b) Habitat destruction

c) Depletion of finite reserves

d) Soil erosion

Q. Precious metals and gemstones, as non-renewable resources, have significant value in areas like jewelry, currency, and industrial applications. What is a key consideration when mining these resources?

a) Their abundance in the Earth's crust

b) Their low economic value

c) Environmental and social impacts

d) Their high renewable potential

Q:Describe the significance of renewable energy sources in mitigating climate change. Provide examples of renewable energy technologies and their environmental benefits.

Q: Discuss the challenges associated with the integration of intermittentrenewable energy sources like wind and solar into the existing energy grid. Explain the role of energy storage solutions in addressing these challenges.

Q: Explain the concept of sustainable biomass energy and its role in reducing carbon emissions. Discuss the importance of responsible biomass management and its impact on the environment.

Q: Discuss the environmental and social challenges associated with the extraction and use of fossil fuels like coal and oil. Analyze the globa transition towards cleaner energy sources and the role of policies in promoting this transition.

Q: Explain the concept of "peak oil" and its implications for global energy security. Discuss strategies for diversifying energy sources and reducing dependence on non-renewable fossil fuels.

Q: Describe the environmental concerns associated with mining and extraction of non-renewable minerals and metals. Discuss the concept of responsible mining practices and their importance in mitigating these concerns.

4.6 Let us Sum up

- India faces complex and interconnected environmental challenges due to rapid development, population pressure, and climate change.
- Key environmental concerns include land degradation, deforestation, urbanization, air and water pollution, and biodiversity loss.
- The country's environmental policies strive to balance economic growth with the need for environmental sustainability and social equity.

- Land resources are under pressure from agriculture, urban expansion, and improper management, leading to degradation and conflicts.

- Forests are crucial for biodiversity and climate regulation but face threats from deforestation and land-use changes; community participation and protected areas help in conservation.

- Air quality is deteriorating in urban and rural areas due to emissions from vehicles, industries, and household fuels, with programs like the National Clean Air Programme addressing these issues.

- Water resources are stressed by pollution, over-extraction, disputes, and climate impacts, with initiatives like the National Water Policy promoting sustainable management.

- Dams provide water storage, hydropower, and flood control but cause environmental disruption and displacement, requiring careful assessment and management.

- Environmental health is affected by poor air and water quality, sanitation gaps, and industrial pollution, influencing public health outcomes.

- Habitats are under threat from urbanization, deforestation, and industrialization, impacting biodiversity and human settlements.

- The relationship between people and the environment highlights the need for sustainable resource use, environmental education, and inclusive conservation strategies.

- Renewable resources (solar, wind, hydropower, biomass) are vital for a clean, sustainable future, while non-renewable resources (fossil fuels, minerals) are finite and environmentally damaging.

- The chapter stresses the importance of transitioning towards renewable energy, responsible resource management, community-based conservation, and adherence to global environmental agreements**.**

4.7 FURTHER READING

1. Summarize the current state of air quality in major metropolitan areas of India. What are the primary sources of air pollution?

2. Provide an overview of the status of water resources in India. Highlight major challenges and initiatives for water conservation.

3. Discuss the current state of biodiversity in India. Identify key biodiversity hotspots and threats to biodiversity conservation.

4. Briefly explain the status of waste management practices in India. How effective are current waste disposal and recycling systems?

5. Outline the major environmental challenges faced by rural areas in India. How do these challenges differ from those in urban areas?

6. Analyze the trends and patterns of climate change in India. How are changing climatic conditions impacting various regions and sectors of the country?

7. Examine the environmental implications of rapid urbanization in India. Discuss the challenges and potential solutions for creating sustainable and resilient cities.

8. Evaluate the effectiveness of current environmental policies in addressing the degradation of natural resources in India. Identify areas for improvement and propose policy recommendations.

9. Explore the relationship between industrialization and environmental pollution in India. How can industries be encouraged to adopt more sustainable practices?

10. Discuss the role of community-based initiatives in promoting environmental conservation in India. Provide examples of successful community-led projects and their impact.

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UNIT 5 : EMERGING ENVIRONMENTAL CONCEMS IN INDIA

5.1 Learning Objectives

5.2 Introduction

5.3 List Of Emerging Environmental Concerns In India

5.3.1 Air Pollution

5.3.2 Water Pollution

5.3.3 Deforestation And Habitat Loss

5.3.4 Waste Management

5.3.5 Climate Change Impacts

5.3.6 Biodiversity Loss

5.3.7 Land And Gradation

5.3.8 Urbanization And Infrastructure Development

5.4 Case Study Of Silent Environmental Concerns In India

5.4.1 Silent Valley

5.4.2 Sardar Sarovar Dam

5.4.3 Tehri - Garwal Dam

5.5 Pollution Trading, Carbon credits, Carbon trading

5.5.1 Pollution Trading

5.5.2 Carbon Credit

5.5.3 Trading Credits

5.6 Kyoto protocol: an Indian perspective

5.7 Let s Sum up

5.8 Further Reading

5.1 LEARNING OBJECTIVES

After successful completion of this unit, you will be able to

- List emerging environmental concerns in India
- Explain carbon footprints, ecological footprints, happy planet index,
  ecosystem valuation and earth overshoot day.
- Describe the Stockholm conference, World commission on environment and development and Rio de Janerio conferences

5.2 INTRODUCTION

We all know that environment plays a very important role in our daily life.

There are various environmental issues and crisis that we face today. In order to curb with these issues, we must be well aware of it. The current section discusses about environmental awareness.

The unit on "Emerging Environmental Concerns in India" within the Environmental Education, Policies & Legislation course at the postgraduate level

offers an in-depth examination of contemporary environmental challenges faced by the country. This unit aims to provide students with a comprehensive understanding of the dynamic environmental landscape, enabling them to critically analyze, propose solutions, and contribute to policy discussions.

The course delves into a range of pressing environmental issues specific to India, including but not limited to air and water pollution, deforestation, habitat degradation, waste management, climate change impacts, and biodiversity loss.Students will explore the root causes, consequences, and potential mitigation strategies associated with these challenges.

A significant focus of the unit is to analyze the role of environmental policies and legislation in addressing emerging concerns. Students will critically evaluate existing policies, their implementation, and potential areas for improvement. Additionally, the unit may cover international agreements and collaborations relevant to addressing transboundary environmental issues.

The unit may also explore the intersectionality of environmental concerns with social and economic factors, emphasizing the need for holistic and sustainable solutions. Case studies and real-world examples specific to India will be used to illustrate the complexities and nuances of managing environmental challenges in a diverse and populous country.

Ultimately, the unit aims to empower students with the knowledge and skills necessary to engage in informed discussions, contribute to policy development, and actively participate in addressing the evolving environmental concerns that impact India's ecosystems and communities.

5.3 LIST OF EMERGING ENVIRONMENTAL CONCERNS IN INDIA

India, with its vast and diverse landscape, faces a myriad of environmental challenges that demand attention, analysis, and strategic intervention. As the nation strives for economic growth and development, the environmental repercussions have become increasingly pronounced. This examination of emerging environmental concerns in India will delve into key issues across different domains, shedding light on the complexity of the challenges and the role of policies and legislation in addressing them.

5.3.1 AIR POLLUTION

Sources and Concerns: Air pollution in India stems from various sources, including industrial emissions, vehicular exhaust, biomass burning, and dust. The concentration of particulate matter (PM), nitrogen dioxide (NO2), and sulfur dioxide (SO2) often surpass permissible limits, posing significant threats to public health and the environment. Urban centers, especially metropolitan areas, experience elevated levels of air pollution, contributing to respiratory diseases and other health complications.

Policy Focus: To combat air pollution, India has implemented policies

targeting industries and vehicles. Regulations govern emissions from factories, and efforts are made to promote cleaner technologies and fuels. Additionally, policies addressing crop residue burning, a major contributor to air pollution, aim to provide alternatives and sustainable solutions.

5.3.2 WATER POLLUTION

Sources and Concerns: Water pollution arises from industrial effluents, untreated sewage, agricultural runoff, and improper waste disposal. Contaminated water sources jeopardize both human health and aquatic ecosystems. The presence of pollutants, including heavy metals and pesticides, contributes to waterborne diseases and disrupts the balance of aquatic life.

Policy Focus: Legislation related to water pollution focuses on regulating

industrial discharges, promoting wastewater treatment, and managing agricultural practices to minimize runoff. Policies also stress the importance of community involvement and awareness in maintaining water quality, particularly in rural areas.

5.3.3 DEFORESTATION AND HABITAT LOSS

Causes and Concerns: Deforestation results from urbanization, agricultural expansion, logging, and infrastructure development. This leads to habitat loss, impacting biodiversity and disrupting ecosystems. The loss of forest cover not only affects flora and fauna but also exacerbates climate change by reducing the capacity of forests to sequester carbon.

Policy Focus: Forest conservation policies and afforestation initiatives aim to counteract deforestation. Sustainable land-use planning is emphasized to balance developmental needs with environmental conservation. Additionally, community- based conservation efforts and awareness programs contribute to the preservation of biodiversity.

5.3.4 WASTE MANAGEMENT

Issues and Concerns: Improper solid waste disposal, electronic waste, and plastic pollution pose significant challenges. Inadequate waste management leads to land and water pollution, health hazards, and the unsustainable accumulation of waste. Rapid urbanization aggravates the problem, necessitating effective waste management strategies.

Policy Focus: Waste management policies emphasize recycling, waste reduction, and the implementation of extended producer responsibility. Integrated waste management systems, including segregation at source and Efficient recycling practices, are integral components of these policies. Public awareness campaigns also play a vital role in promoting responsible waste disposal.

5.3.5 CLIMATE CHANGE IMPACTS

Effects and Concerns: Climate change manifests in altered temperature patterns, changing precipitation, and an increase in extreme weather events. These changes affect agriculture, water resources, and vulnerable communities. India, with its agriculture-dependent economy, faces challenges such as altered cropping patterns, water scarcity, and increased frequency of natural disasters.

Policy Focus: The National Action Plan on Climate Change outlines adaptation and mitigation strategies. Policies aim to promote renewable energy, enhance energy efficiency, and integrate climate-resilient practices in agriculture. International collaborations, such as the Paris Agreement, guide India in aligning its efforts with global climate action.

5.3.6 BIODIVERSITY LOSS

Threats and Concerns: Biodiversity loss is driven by habitat destruction, pollution, over-exploitation of resources, and the introduction of invasive species. The diminishing biodiversity not only impacts ecosystems but also compromises the resilience of natural systems to environmental changes.

Policy Focus: Biodiversity conservation strategies include the establishment and management of protected areas, habitat restoration initiatives, and the implementation of sustainable resource-use practices. Policies also address the conservation of endangered species, emphasizing the importance of preserving India's rich biological diversity.

5.3.7 LAND DEGRADATION

Causes and Concerns: Land degradation results from deforestation, unsustainable agricultural practices, and industrial activities. Soil erosion, loss of fertile land, and diminished agricultural productivity are consequences of these practices. Sustainable land management is crucial for ensuring food security and environmental sustainability.

Policy Focus: Policies addressing land degradation focus on soil conservation measures, sustainable agriculture practices, and land-use planning. Afforestation programs and initiatives to promote soil health contribute to the restoration and conservation of land resources.

5.3.8 URBANIZATION AND INFRASTRUCTURE DEVELOPMENT

Issues and Concerns: Rapid urbanization, inadequate infrastructure planning, and encroachment on natural habitats characterize the challenges associated with India's urban growth. The demand for resources, habitat fragmentation, and increased pollution levels are consequences of unchecked urban development.

Policy Focus: Sustainable urban planning policies aim to balance the needs of urbanization with environmental conservation. Green infrastructure initiatives, including the creation of parks and green spaces, contribute to maintaining ecological balance in urban areas. Zoning regulations and smart city initiatives also play a role in shaping environmentally conscious urban development.

The emerging environmental concerns in India present a multifaceted challenge that requires a holistic and integrated approach. Policies and legislation play a pivotal role in addressing these issues, but their effectiveness depends on implementation, monitoring, and adaptive management. The complexities of these challenges necessitate interdisciplinary efforts, involving not only policymakers but also communities, industries, and academia. As India strives for sustainable development, the careful consideration of environmental implications becomes imperative to ensure a harmonious balance between progress and ecological preservation. A comprehensive understanding of these concerns, coupled with informed policy interventions, is essential for creating a resilient and sustainable future for the nation.

CHECK YOUR PROGRESS

Q: How does climate change impact agriculture in India?

a) Increased crop yield

b) Altered cropping patterns and water scarcity

c) Enhanced soil fertility

d) Decreased temperature fluctuations

Q: What are the threats to biodiversity in India?

a) Increased habitat preservation

b) Over-exploitation of resources and habitat destruction

c) Afforestation initiatives

d) Climate change mitigation strategies

Q: What is a consequence of land degradation in India?

a) Increased agricultural productivity

b) Soil conservation

c) Loss of fertile land and diminished agricultural productivity

d) Enhanced water retention in soil

Q: What challenges are associated with rapid urbanization in India?

a) Enhanced environmental conservation

b) Reduced pollution levels

c) Habitat preservation

d) Increased demand for resources and habitat fragmentation

Q: Explain the major sources and impacts of air pollution in India. How can environmental policies effectively address this issue?

Q: Discuss the sources and consequences of water pollution in India. How can policies and legislation mitigate the impacts of water pollution?

Q: Identify the causes and impacts of deforestation in India. How can forest conservation policies contribute to mitigating the effects of habitat loss?

Q: Analyze the challenges associated with improper waste disposal in India. Discuss the key components of effective waste management policies.

Q: Evaluate the impacts of climate change on agriculture and water resources in India. How can national policies and international collaborations address these challenges?

Q: Discuss the threats to biodiversity in India and the role of biodiversity Conservation strategies. How can legislation protect endangered species?

5.4 CASE STUDY OF SILENT ENVIRONMENTAL CONCERNS IN INDIA

5.4.1 SILENT VALLEY-

Long before the Internet era, a remarkable people's movement saved a pristine moist evergreen forest in Kerala's Palakkad District from being destroyed by a hydroelectric project.

The battle for the now famous Silent Valley raged for over ten years and involved thousands of people who did not even live in the vicinity of the area that was to be destroyed. Although the campaign did not have any centralized planning, it was highly effective. The sustained pressure exerted on the government by citizen using every possible means available at the time – letters to the editors of newspapers, seminars, widespread awareness programmes, and finally petitions and appeals in court and other high offices – proved ultimately successful. In 1986 Silent Valley was declared a National Park, a striking testimony to the power of peoples' action. The lessons from this inspiring and hard-fought campaign are still relevant today.

The Kunthipuzha river

PHYSIOGRAPHY AND CLIMATE:

The Silent Valley forests are situated at the south-western corner of the Nilgiri Biosphere Reserve in the Western Ghats in Palakkad District of Kerala, South India, located in 11° 05' Northern latitude and 76° 26' eastern longitude. Evolutionary age of the Silent Valley forests is believed to be more than 50 million years. The name of the region was attributed considering the relative absence of the Cicada insects which normally produce a distinctive sound in a tropical forest environment. It is, however, found that cicadas have started occupying the forest in recent years. Core zone of the Silent Valley is roughly a rectangular table-land extending over an area of 89.52 square kilometers. This is a cliff forest which suddenly descends from the Nilgiri plateau to the plains of Kerala with a sudden drop in altitude from 2500 m to 150 m across a distance of three to four kilometers. It has high and continuous ridges along its entire north, north-east and east borders and somewhat lower ridges over 1200 m high along the entire western and southern borders. Due to the presence of high ridges all around, the whole plateau is shielded from extremes of climate and anthropogenic degradation and it maintains its own microclimates.

The Anginda (2383 m) and Sispara (2206 m) forms the highest peaks on the northern and north- eastern boundary while Poochipara (1376 m) and Valiamullu Mala (1237 m) are the peaks in the west. At the southern 142 boundary is the Palakkad Forest Division and at the eastern side it shares the boundary with Attappadi reserve forests.

A perennial river, Kunthipuzha, originating from Kozhipara peak in the north at an altitude of 1861 m, flowing down the entire length of the Valley, towards the south, ultimately flowing down to the Mannarkkad plains. Almost all the tributaries of Kunthipuzha originate from the eastern slope, which after steeply coming down the ridges, pass through a gentle stretch of more than 1 km, before joining the main stream. The Kunthipuzha itself is uniformly shallow, without any flood plains and destructive water level fluctuations during the heavy monsoon months. There are no human settlements in the core area of the Silent Valley.

Average minimum temperature ranges from 8 °C to 14 °C and average maximum from 23 °C to 29 °C. Silent Valley receives an average of 3180 mm rainfall annually. The heaviest rainfall is during the months of June, July, and August. Variations in the intensity of rainfall are observed as one goes from the foot hills to the high ranges.

ZONES OF SILENT VALLEY NATIONAL PARK:

Silent Valley National Park has a core zone surrounded by the buffer zone. Core zone of the Park is divided into four sections, namely Sairandri, Poochipara, Neelikkal and Walakkad. Total extent of the core zone is 89.52 km2 . Buffer zone include areas of Anavai and Thudukki forests of Bhavani Range and buffer areas of Silent Valley Range situated in Neelikkal, Poochipara and Walakkad sections. The forests of the buffer zone also harbour rich biota and therefore constitute high value biodiversity conservation areas.

FLORA AND FAUNA:

The forests of Silent Valley consist of mainly moist evergreen forests, dry evergreen forests, highland grasslands, lowland grasslands and high altitude sholas. Several novel species of mosses, ferns and flowering plants have been 144 described from the area. The forest near Mukkali are typical tropical moist deciduous with following dominant flora: Terminalia arjuna, T. paniculata, T. crenulata, Adina cordifolia, Kydia calycina, Jambosa mundagam, Dalbergia latifolia, Gnetum ula, Entada scandens and Vitex altissima. The Mukkali eastern slope exhibits extensive population of wild coconut (Arenga wightii). Some of the important canopy trees are Cullenia exarillata, Aglaia roxburghiana, Canarium strictum, Myristica beddomei, Mesua ferrea, Melia dubia, Saraca indica, Spondias acuminata, and Trewia nudiflora. Secondary storey plants include Baccaurea courtallensis, Chrysophyllum lanceolatum, Antidesma menasu, Croton argyratus, Apama siliquosa, Polyalthia fragrans and Memecylon heyneanum. Examples for undergrowth plants include Sonerila versicolour, Sarcandra grandifolia, Angiopteris evecta, Cyathea gigantea, Pothomorphe subpeltata, Anaphyllum wightii, Pinanga dicksonii and Lasianthus jackianus. Climbers are commonly found both in core and buffer zones and are exemplified by Dioscorea oppositifolia, D. tomentosa, D. bulbifera, Smilax zeylanica, Aristolochia indica, A. tagala, Thunbergia mysorensis, Strychnos cinnamomifolia, Toxocarpus palghatensis and Jasminum rottlerianum.

Herbivorous animals are the most dominant in this forest. Among vertebrates birds are the most successful forms due to their varied feeding mechanisms and adaptations.

Three of the most important animals are the Lion –tailed Macaque, Nilgiri Langur and Giant Squirrel. These animal species are less adapted to drastic changes in their environment and they thrive well in Silent Valley. In the semi-evergreen and moist deciduous forests terrestrial herbivores are common while in evergreen forests, arboreal animals are more abundant since food sources are mostly restricted to the upper canopies. The Nilgiri Tahr and many predatory species prefer patches of open grasslands. Elephants, bears, wild dogs, tigers and BlackPanther also occur.

Blood-sucking leeches are abundant in Silent Valley and are a serious menace to the warm blooded animals, especially to humans, which is supposed to be one of the reasons for the absence of any tribal settlements in the area. Some animal groups of the Park are well-studied and they include mammals, butterflies and moths, birds, Snakes, lower vertebrates and carnivores. Among the animals of the Park, three (tiger, Lion-tailed macaque, Nilgiri tahr) are listed in the endangered category. Fungal diversity of the Silent Valley remains least explored. Attempts were made to document microfungi, especially foliicolous fungi, of the region. The Silent Valley National Park is a symbol of victory of people's campaign for conservation in Kerala. Silent Valley is part of the Nilgiri Biosphere Reserve. During their invasion to India, the British discovered the Valley. The valley saw various interventions by Europeans including development of coffee plantations and tree felling up to 1902. Silent Valley was notified as a reserve forest by Government of Madras in 1914. In 1928, a location at Sairandhri section on river Kunthipuzha was identified as an ideal site for a hydro-electric project. Later in 1958, the Kerala State Electricity Board proposed a 120 Megawatt hydel power project by constructing a dam across Kunthipuzha which was estimated to cause submergence of 830 hectares of nearby forest.

Resistance to the project raged and picked up momentum in 1976 with wide media coverage. Major arguments raised by the conservationists against the construction of dam and the hydroelectric project were that the Silent Valley forests represented the only undisturbed patch of tropical evergreen rainforest in our country, its rich flora constituted a valuable gene pool and it may be harbouring many new and rare species of plants yet to be discovered, which may be lost forever due to the submergence of the forest areas and other consequent ecological changes upon construction of the dam and the power plant. Those who supported the project argued mainly aiming economic benefits. According to them, Silent Valley cannot be classified as a tropical evergreen rain forest and that it is already disturbed and the forest does not contain any new or rare species of plants and its flora is not much rich. But, ecological studies proved that Silent Valley could be considered as a tropical rainforest. Most of the features that are commonly attributed to typical rainforests such as the predominance of woody vegetation, tall slender trees with “flying buttresses” and unusually thin bark, multiple storied vegetation with abundance of epiphytes and lianas, ever greenness and high rate of speciation.

The National Committee on Environmental Planning & Co-ordination (NCEPC) suggested 17 safeguards in implementing the project. In 1978 the project was approved on a condition that the State Government should endorse a strict legislation for ensuring the above said safeguards. In 1979, the Government of Kerala enacted the Silent Valley Protected Area (Protection of Ecological Balance) Act. In the same year M.S. Swaminathan (the then Principal Secretary, Ministry of Agriculture, Government of India) visited the area and submitted a report opposing the project.

Based on this report, the Prime Minister of India requested the State Government to stop further work on the project in 1980. A joint committee was set up under the Chairmanship of M.G.K. Menon to examine the practicability of implementing the project without significant ecological damage. They have carried out thorough investigation on various aspects such as ecology, biodiversity and impact of the project and submitted the report. It was found that the project would pose serious threat on the overall integrity of the Silent Valley and on 15th November 1984, Government of Kerala decided to abandon the project and declared Silent Valley as a National Park. As the most fiercely contested environmental dispute in the country, the Silent Valley movement quickly symbolized the quest for a new concept: "development without destruction". The Silent Valley National Park was inaugurated on 7th September 1985 by Sri. Rajiv Gandhi, the then prime minister of India. In order to provide effective protection to the core zone of the Silent Valley, Government of Kerala declared addition of a buffer zone of 148 square kilometres around the National Park on 11th June 2007.

5.4.2 SARDAR SAROVAR DAM

Construction of dams in India was described and considered as the "Temples of Modern India" by the first generation of leaders. The supporters of dams justify construction of large dams on the grounds that dams are useful to control flood, to eradicate poverty, and to provide water for irrigation and drinking purposes. In addition to the above mentioned reasons favoring construction of dams, protagonists of dams believe that large dams and multi-purpose river valley projects have provided food security to India. But it is well documented and proven fact that dams have failed to deliver projected results.

Despite this, governments are undertaking construction of more and more large dams without taking into consideration their adverse environmental consequences.

The problem of environment pollution has become so serious worldwide including in India that we can no longer ignore the issue of environmental protection in the name of development. The Supreme Court in the past has showed a great zeal of enthusiasm to protect environment against any developmental activities and issued various directions in appropriate cases against governments and the polluters regarding protection of environment. When any developmental activities were undertaken by governments threatening environment, the Supreme Court did not forget to uphold the cause of environment over development. Even when development was considered inevitable for the Country, the Court tried its best to reconcile right to development and right to environment. It did not afraid to endorse and apply principles of sustainable development such as Polluter Pays Principal, Precautionary Principle and Intergenerational equity principle. But in Narmada dam case, Supreme Court of India ignored the issue of environment protection and permitted construction of this dam. It was clear cut deviation from its earlier environment friendly approach. Therefore, the present study is an attempt to critically examine the environmental ramifications of the role of the Supreme Court of India in the context of Sardar Sarvovar dam.

SARDAR SAROVAR DAM

1. **Location-** It is built on river Narmada crossing the state Gujrat in India.It is 170 Km (106 miles) upstream from where the river flows into the Gulf of Khambhat in the Arabian Sea.

2. **Purpose of building dam-**

   a) To increase irrigation

   b) Produce hydroelectricity

   c) To control floods

   d) To eradicate poverty

3. **State governments involved in the project-**

   a) Gujrat

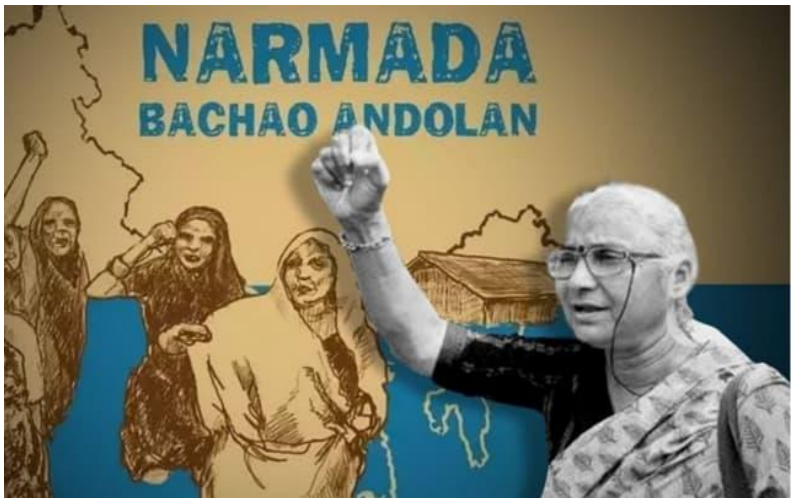
   b) Maharashtra

   c) Rajasthan

   d) Madhya Pradesh

4. Time taken- To build the dam was almost six decades as the big question was that- "Was it worth submerging thousands of hectares of land and uprooting livelihoods of thousands of farmers and tribals?"

Medha Patkar and her **Narmada Bachao Andolan** played a major role in the construction of the dam.



NARMADA BACHAO ANDOLAN

5. Harms that would be caused due to construction of the dam-

a) 4000 families would get displaced

b) 37,500 hectares of land would get submerged affecting the livelihoods and ecology

c) With no dam, no additional electricity would be generated

6. Benefits of dam construction-

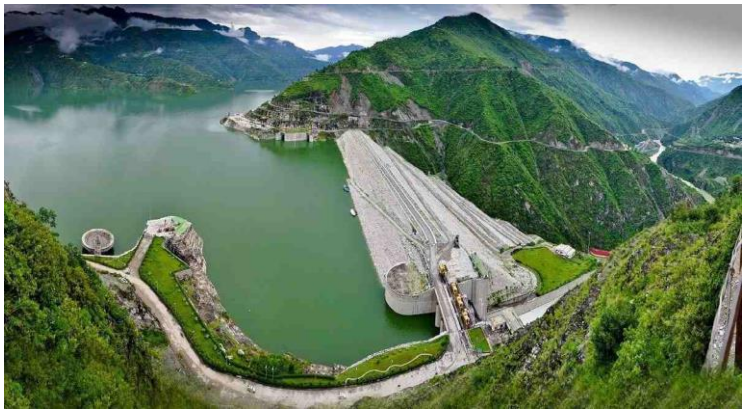
a) 2.5 crores people will have access to drinking water in Gujrat and Rajasthan

b) 21 hectares of land will get irrigated in Gujrat and in desert districts of Rajasthan

c) With dam construction comes 1450MW of installed capacity power that will not only go to Madhya Pradesh and Maharashtra but also Gujarat.

5.4.4 TEHRI-GARWAL DAM

The Tehri Dam on India's Bhagirathi River, the main tributary of the Ganges, is one of the world's largest and most controversial hydroelectric projects. Under construction since 1978, the final phase of reservoir filling is scheduled to sta rt byDecember 2002. Within six months the homes and lands of around 100,000 people would be submerged. Power production is planned to begin in August 2003. Tehri is located 200 miles north east of Delhi, in the state of Uttaranchal. With a height of 260 meters (855 feet), the dam will be the fifth tallest in the world. Its reservoir will completely submerge Tehri Town and 40 villages, and partially submerge 72 villages. The two lower tunnels of the dam were closed in December 2001 submerging the main bridge leading to Tehri town and nearby areas. The last two tunnels, which are at a higher level, are scheduled to be closed by December 2002. This will result in complete submergence of Tehri Town and surrounding villages. From its inception, Tehri dam has been opposed due to concerns over its environmental and social impacts, and its ability to withstand earthquake damage. Tehri Dam officials have also been implicated in several cases of corruption.



TEHRI DAM

Tehri Hydro Development Corporation (THDC) is a joint venture of the Government of India and the state government of

Uttaranchal. In 1986 an Indo-Soviet agreement brought Soviet expertise and aid of approximately $416 million to the project. In 2001 the German export credit agency Hermes guar anteed loans to Voith Siemens Hydro to provide generating equipment for Tehri.

Seismic Risk:

Tehri Dam is situated in the highly active Central Himalayan Seismic Zone. It is designed to withstand earthquakes of up to 7.2 on the Richter scale although experts predict that earthquakes of magnitude 8.5 or more could strike this region. If the dam were to burst, several major towns downstream of the dam with a total population of over half a million people could be wiped out Landslides are common on the steep slopes above Tehri's reservoir. A major landslide into the reservoir could cause a huge wave, which could overtop the dam and cause massive damage downstream.

Displacement and Rehabilitation:

Although land acquisition started in 1979, resettlement of affected people is far from complete. There is no master plan for rehabilitation nor even a clear estimate of the number of people affected. Past estimates range from 67,500 to 97,000. According to the 2002 Status Report of the Public Works Department of Tehri, the Dam will displace 12,547 families. This estimate excludes a large number of people who will lose their lands but have not been officially recognised as project-affected. Among those officially recognised, only half of the fully affected and very few of the partially affected families have been resettled. In most cases the land allotted is of poor quality or with multiple ownership claims.

Popular Resistance and Review:

Tehri Dam has met strong popular resistance from its earliest days. In 1978 a Committee to Oppose the Tehri Dam or the Tehri Bandh Virodhi Sangharsh Samiti (TBVSS) was

formed. TVBSS succeeded in pressuring authorities to review the project on several occasions. The project was abandoned in the mid-1980s after being sharply criticized on environmental grounds by a government appointed review committee.

In 1987 the project was again referred to a committee of the Ministry of Environment to assess its safety and environmental and social impacts. This committee unanimously ruled against the project but the Indian government overruled its findings and restarted the project. After a 74-day hunger strike in 1996, Sunderlal Bahuguna, a Gandhian activist and long-time opponent of the dam, forced the government to set up a review of the seismic, environmental and rehabilitation aspects of the project. The Hanumantha Rao Committee submitted its report and recommendations in 1997. The government has failed to implement most of the committee's recommendations, especially those concerning rehabilitation. In 1992 environmentalists filed a case in the Supreme Court alleging that project authorities had not acquired the mandatory environmental clearance for the dam. The petition addresses environment, seismicity and rehabilitation issues. The case is currently pending.

The Central Bureau of Investigation is currently investigating six cases of corruption against high-ranking officials of THDC for embezzlement of public money. The Hanumantha Rao Committee report expressed concern about the high incidence of corruption in the rehabilitation process.

Economic Viability

The projected cost of Tehri Dam has gone up from $612 million in 1994 to $1.2 billion in 1999. A cost benefit analysis commissioned by the Indian National Trust for Art and Cultural Heritage (INTACH) concluded that the construction costs for Tehri are twice the projected benefits. The INTACH study predicts the useful life of the dam will be reduced to 62 years by the huge volumes of s ediment

That will be trapped in its reservoir. A recent study shows that the cost of electricity per unit from Tehri is almost twice the average cost of power supply in the neighbouring states of Punjab, Himachal Pradesh and Jammu and Kashmir (International Rivers Network Linking Human Rights and Environmental Protection) Fact Sheet, 2002),

CHECK YOUR PROGRESS

Q: How did environmental activism contribute to addressing concerns in Silent Valley?

a) By promoting industrial development

b) By advocating for logging activities

c) By raising awareness and pressuring authorities

d) By supporting deforestation initiatives

Q: What environmental concerns are associated with the Sardar Sarovar Dam?

a) Biodiversity conservation

b) Water scarcity mitigation

c) Displacement of local communities and ecological impacts

d) Promotion of sustainable agriculture

Q: What were the major environmental concerns associated with the Tehri Garhwal Dam project?

a) Increased agricultural productivity

b) Displacement of communities and seismic risks

c) Preservation of biodiversity

d) Improved water quality

Q: What is a common theme in the Silent Valley, Sardar Sarovar Dam, and Tehri Garhwal Dam case studies?

a) Promotion of industrialization

b) Emphasis on sustainable development

c) Environmental concerns related to dam construction

d) Conservation of marine ecosystems

Q: Describe the environmental concerns associated with the Silent Valley case study. How did the Silent Valley controversy contribute to the development of environmental policies in India?

Q: Analyze the role of public participation and environmental activism in addressing the issues in Silent Valley. How did this case influence subsequent environmental movements in India?

Q: Discuss the environmental and social implications of the Sardar Sarovar Dam project. How did the opposition to this dam contribute to the discourse on sustainable development in India?

Q: Evaluate the effectiveness of policies and legislation in addressing the environmental concerns associated with the Sardar Sarovar Dam. What lessons can be learned for future large-scale infrastructure projects in India?

Q: Examine the environmental and social implications of the Tehri Garhwal Dam project. How did local communities and environmental activists respond to the challenges posed by this dam?

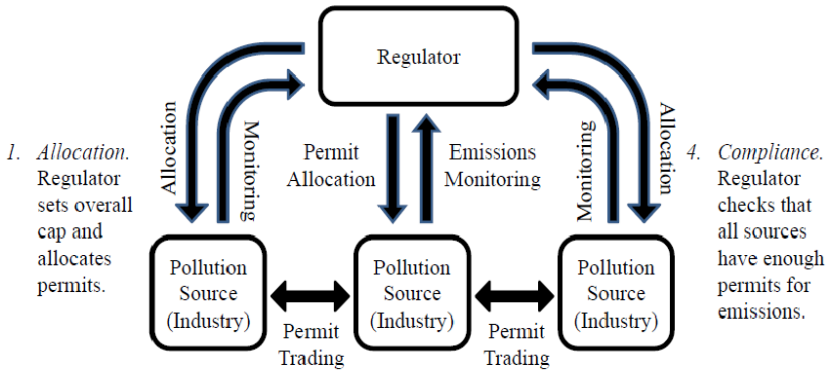
Q: Evaluate the role of government policies and environmental impact assessments in addressing the challenges posed by the Tehri Garhwal Dam. What improvements could be recommended for future dam projects?

5.5 POLLUTION TRADING, CARBON CREDITS, CARBON TREDING

5.5.1 POLLUTION TRADING

The high influxes of population to urban areas, change in consumptionpatterns and unplanned urban and industrial development have led to unabated increase in air pollution in urban metropolitan cities in India. The problem has been exacerbated due to inadequacy of pollution control measures, lack of proper enforcement of laws and regulations, increasing desertification, and decreasing vegetation cover 1.

As per an earlier conservative estimate of The Ministry of Environment and Forests (MoEF) air pollution contributed to nearly 40,351 premature deaths spread across 36 cities of India in 1995 itself. The total economic loss attributed to air pollution in these cities for the year was estimated as US$1,310 million (Greenstone and Shah, 2013).



Emission Trading System Functions

Another new set of findings from Global Burden of Disease Report indicate tha outdoor air pollution has reportedly become the fifth largest killer in India after high

blood pressure, indoor air pollution, tobacco smoking, and poor nutrition,. The report says that about 620,000 premature deaths occur in India from air pollution - related diseases each year.

The scheme allows the regulators—central and state pollution control boards—to set a cap on the aggregate level of pollution permitted in an industrial area, and then allow the industries to self-regulate to ensure that pollution does not exceed this cap. Industries that emit excess pollutants can buy permits from industries that would be overachieving targets in a similar manner as in the carbon trading system. Although regulator sets total emissions amount but does not decide what any particular source will emit. Industries face price for their emissions and can buy and sell permits to emit under the cap.

Price of emissions makes pollution costly and gives incentive to cut back. Industries have the flexibility to design own compliance strategy either through abatement process and/or technology changes or through permit trading.

Flexibility allows units with low cost of reductions to emit less and sell their right to emit to others, lowering overall compliance costs. Auctioning would be considered as the preferred method of allocation of permits to show that the government is establishing a right to emissions and to send clear price signals to participating unit from the very start of the scheme.

There is, however, one complication in linking NAAQS and ambient air quality to the cap is that the former refers to the total level of pollutants in an area, which is a function of all local sources (of which industry is a fraction and transport and others play a significant role) as well as more distant sources whose pollutants are transmitted through meteorological forces. Therefore, a simpler method is to rely on estimating how much industries covered by the pilot are currently contributing and then setting a target below that.

- The pilot emissions trading scheme involves collaboration amongst many parties.

- The scheme had been taken up under the authority of the Ministry of Environment & Forests (MoEF), Government of India.

- The Central Pollution Control Board (CPCB) advises on technical aspects of the scheme implementation.

- The respective State Pollution Control Boards (SPCBs) of Gujarat, Maharashtra and Tamil Nadu are responsible for implementing the scheme, both directly and indirectly, through private consulting firms with expertise in relevant technical and financial fields.

- J-PAL (Abdul Jameel Latif- Poverty Action Lab) South Asia at IFMR (Institute of Financial Management and Research) serves as independent advisor and evaluator for the scheme. A governing council was also formed in MoEF to oversee the development and implementation of the scheme that would meet approximately three times per year during the first two years of the scheme (Bandyopadhyay, 2016).

5.5.2 CARBON CREDIT

A carbon credit is a tradable permit or certificate that provides the holder of the credit the right to emit one ton of carbon dioxide or an equivalent of another greenhouse gas – it's essentially an offset for producers of such gases. The main goal for the creation of carbon credits is the reduction of emissions of carbon dioxide and other greenhouse gases from industrial activities to reduce the effects of global warming.

Carbon credits are market mechanisms for the minimization of greenhouse gases emission. Governments or regulatory authorities set the caps on greenhouse gas emissions. For some companies, the immediate reduction of the emission is not economically viable. Therefore, they can purchase carbon credits to comply with the emission cap. Companies that achieve the carbon offsets (reducing the emissions of greenhouse gases) are usually rewarded with additional carbon credits. The sale of credit surpluses may be used to subsidize future projects for the reduction of emissions.

The introduction of such credits was ratified in the Kyoto Protocol. The Paris Agreement validates the application of carbon credits and sets the provisions for the further facilitation of the carbon credits markets.

Types of Carbon Credits

a) Voluntary emissions reduction (VER): *A carbon offset that is exchanged in the over-the-counter or voluntary market for credits.*

b) Certified emissions reduction (CER): *Emission units (or credits) created through a regulatory framework with the purpose of offsetting a project's emissions. The main difference between the two is that there is a third party certifying body that regulates the CER as opposed to the VER.*

5.5.3 TRADING CREDITS

Carbon credits can be traded on both private and public markets. Current rules of trading allow the international transfer of credits.

The prices of credits are primarily driven by the levels of supply and demand in the markets. Due to the differences in the supply and demand in different countries, the prices of the credits fluctuate. Although carbon credits are beneficial to society, it is not easy for an average investor to start using them as investment vehicles.

The certified emissions reductions (CERs) are the only product that can be used as investments in the credits. However, CERs are sold by special carbon funds established by large financial institutions. The carbon funds provide small investors with the opportunity to enter the market.

There are special exchanges that specialize in the trading of the credits, including the European Climate Exchange, the NASDAQ OMX Commodities Europe exchange, and the European Energy Exchange.

CHECK YOUR PROGRESS

Q: Pollution trading, also known as emissions trading, is a market-based approach to controlling pollution. Which of the following statements about pollution trading is correct?

a) It involves the direct government regulation of pollutant emissions.

b) It aims to incentivize industries to reduce pollution by providing subsidies.

c) It allows industries to buy and sell permits for the right to emit pollutants.

d) It primarily relies on voluntary commitments from businesses.

Q: Carbon credits are typically associated with:

a) Increased greenhouse gas emissions

b) Deforestation and habitat loss

c) Projects that reduce or remove greenhouse gas emissions

d) Expansion of industrial activities

Q: Cap and trade is a form of carbon trading that involves:

a) Direct government subsidies to industries

b) Setting a cap on the total allowable emissions and allowing trading of emission permits

c) Voluntary commitments from businesses to reduce emissions

d) Encouraging the use of fossil fuels

Q: What is a potential environmental benefit of pollution trading and carbon credits?

a) Increased air pollution levels

b) Encouragement of deforestation

c) Reduction in greenhouse gas emissions

d) Promotion of unsustainable industrial practices

Q: Pollution trading and carbon trading are considered market mechanisms because:

a) They involve direct government control of emissions

b) They rely solely on voluntary initiatives by industries

c) They create a market for buying and selling emission allowances or offsets

d) They discourage the use of renewable energy sources

Q: Define pollution trading and explain its underlying principle. Discuss one advantage and one disadvantage of employing pollution trading mechanisms in environmental management.

Q: Define carbon credits and elaborate on how they function to offset carbon emissions. Provide an example of a project that generates carbon credits and explain its environmental benefits.

Q: Identify and discuss three environmental benefits associated with pollution trading and the use of carbon credits. How do these mechanisms contribute to sustainable environmental management?

Q: Explore some challenges and criticisms associated with pollution trading and carbon markets. How can policymakers address these concerns to ensure the effectiveness of these market-based mechanisms?

5.6 KYOTO PROTOCOL: AN INDIAN PERSPECTIVE

The Kyoto Protocol was adopted on 11 December 1997. Owing to a complex ratification process, it entered into force on 16 February 2005. Currently, there are 192 Parties to the Kyoto Protocol.

In short, the Kyoto Protocol operationalizes the United Nations Framework Convention on Climate Change by committing industrialized countries and economies in transition to limit and reduce greenhouse gases (GHG) emissions in accordance with agreed individual targets. The Convention itself only asks those countries to adopt policies and measures on mitigation and to report periodically.

The Kyoto Protocol is based on the principles and provisions of the Convention and follows its annex-based structure. It only binds developed countries, and places a heavier burden on them under the principle of “common but differentiated responsibility and respective capabilities”, because it recognizes that they are largely responsible for the current high levels of GHG emissions in the atmosphere. In its Annex B, the Kyoto Protocol sets binding emission reduction targets for 37 industrialized countries

And economies in transition and the European Union. Overall, these targets add up to an average 5 per cent emission reduction compared to 1990 levels over the five year period 2008–2012 (the first commitment period).

Doha Amendment:

In Doha, Qatar, on 8 December 2012, the Doha Amendment to the Kyoto Protocol was adopted for a second commitment period, starting in 2013 and lasting until 2020. However, the Doha Amendment has not yet entered into force; a total of 144 instruments of acceptance are required for entry into force of the amendment.

The amendment includes:

New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 1 January 2013 to 31 December 2020.

A revised list of GHG to be reported on by Parties in the second commitment period; and Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

On 21 December 2012, the amendment was circulated by the Secretary-
General of the United Nations, acting in his capacity as Depositary, to all Parties to the Kyoto Protocol in accordance with Articles 20 and 21 of the Protocol. During the first commitment period, 37 industrialized countries and economies in transition and the European Community committed to reduce GHG emissions to an average of five percent against 1990 levels. During the second commitment period, Parties committed to reduce GHG emissions by at least 18 percent below 1990 levels in the eight-year period from 2013 to 2020; however, the composition of Parties in the second commitment period is different from the first.

The Kyoto mechanisms

One important element of the Kyoto Protocol was the establishment of flexible market mechanisms, which are based on the trade of emissions permits. Under the Protocol, countries must meet their targets primarily through National measures. However, the Protocol also offers them an additional means to meet their targets by way of three market-based mechanisms:

- International Emissions Trading
- Clean Development Mechanism (CDM)
- Joint implementation (JI)

Monitoring emission targets

The Kyoto Protocol also established a rigorous monitoring, review and verification system, as well as a compliance system to ensure transparency and hold Parties to account. Under the Protocol, countries' actual emissions have to be monitored and precise records have to be kept of the trades carried out.

Registry systems track and record transactions by Parties under the

mechanisms. The UN Climate Change Secretariat, based in Bonn, Germany, keeps an international transaction log to verify that transactions are consistent with the rules of the Protocol.

Reporting is done by Parties by submitting annual emission inventories and national reports under the Protocol at regular intervals.

A compliance system ensures that Parties are meeting their commitments and helps them to meet their commitments if they have problems doing so.

Adaptation

The Kyoto Protocol, like the Convention, is also designed to assist countries in adapting to the adverse effects of climate change. It facilitates the development and deployment of technologies that can help increase resilience to the impacts of climate change.

The Adaptation Fund was established to finance adaptation projects and programmes in developing countries that are Parties to the Kyoto Protocol. In the first commitment period, the Fund was financed mainly with a share of proceeds from CDM project activities. In Doha, in 2012, it was decided that for the second commitment period, international emissions trading and joint implementation would also provide the Adaptation Fund with a 2 percent share of proceeds.

Indian Perspective

India has ratified the second commitment period of the Kyoto Protocol that commits countries to contain the emission of greenhouse gases, reaffirming its stand on climate action. India deposited its Instrument of Acceptance of the Doha Amendment to the Kyoto Protocol under the UN Convention on Climate Change.

India became the 80th country to accept the amendment relating to the second commitment period of the Kyoto Protocol, the international emissions reduction treaty. The Government has decided to ratify the Kyoto Protocol on containing the emission of Green House Gases (GHG) that result in Climate Change with adverse consequences on food productivity, sea level, water resources, forests and other eco systems. The Union Cabinet took a decision to this effect last evening. So far, 77 countries have ratified the Protocol.

India is not required to reduce emission of Green House Gases under the Protocol under which basically the developed countries were required to reduce emissions of GHG by an average of 5.2 per cent below 1990 level by 2012. This Protocol was adopted in 1997 by the countries which are Parties to the United Nations Framework Convention on Climate Change (UNFCC). The Convention seeks to stabilise Green House Gas concentrations in the atmosphere at a level that would minimise interference with the climate system.

India will benefit from transfer of technology and additional foreign investments when the Kyoto Protocol comes into force. Additional investments will come into renewable energy, energy generation and efficiency promotion and afforestation projects. India has all along maintained that developed and developing countries have differentiated responsibility towards stabilising emission of GHG. Besides upholding this position, the Kyoto Protocol enables India to take up clean technology projects with external assistance in accordance with national sustainable development priorities.

The Kyoto Protocol provides for three mechanisms that enable the developed countries to meet the emission limitation and reduction commitments. Under the Clean Development Mechanism (CDM), developed countries would take up Green House Gas reduction activities in developing countries.

India's decision to ratify the Kyoto Protocol is a reaffirmation of the country's faith in multilateral process for addressing global environmental problems.

CHECK YOUR PROGRESS

Q: What is a significant contribution of India to the Clean Development Mechanism (CDM) projects under the Kyoto Protocol?

a) India has focused only on afforestation projects.

b) India has implemented a large number of CDM projects, particularly in the renewable energy sector.

c) India has not participated in the CDM mechanism.

d) India has mainly invested in carbon capture and storage projects.

Q: Following the Kyoto Protocol, what international agreement succeeded in addressing global climate change, and how did it impact India?

a) Paris Agreement; India committed to specific emission reduction targets.

b) Bali Action Plan; India became a net exporter of carbon credits.

c) Copenhagen Accord; India increased reliance on fossil fuels.

d) Rio+20 Conference; India prioritized afforestation initiatives.

Q: In international climate negotiations, what has been India's primary stance regarding its commitment to reducing greenhouse gas emissions?

a) India insists on being exempt from any emission reduction commitments.

b) India supports binding emission reduction targets similar to developed nations.

c) India emphasizes voluntary efforts and adaptation measures.

d) India argues for stricter emission reduction targets for developing countries.

Q: What is one of the main challenges that India faced under the Kyoto Protocol?

a) Limited access to Clean Development Mechanism (CDM) projects.
b) Lack of financial support for adaptation initiatives.
c) Stringent binding emission reduction targets.
d) Inability to participate in international climate negotiations.

Q: Provide an overview of the Kyoto Protocol and its key objectives. How did the protocol differentiate between developed and developing countries in terms of emission reduction commitments.

Q: Discuss India's perspective on the Kyoto Protocol. Why did India opt for voluntary commitments instead of binding emission reduction targets? Highlight the factors influencing India's stance.

Q: Explain the role of India in implementing Clean Development Mechanism (CDM) projects under the Kyoto Protocol. Provide examples of successful CDM projects in India and their environmental and economic benefits.

Q: Identify and discuss the challenges faced by India under the Kyoto Protocol. How did limited access to Clean Development Mechanism (CDM) projects impact the country's efforts to address climate change?

Q: Analyze India's approach in the post-Kyoto era, particularly under the Paris Agreement. How has India's commitment evolved, and what strategies has the country adopted to address climate change on the global stage?

Q: Discuss India's role and contributions to international climate negotiations beyond the Kyoto Protocol. How has India positioned itself in global discussions on climate change, and what initiatives has the country taken to address environmental challenges?

5.7 LET US SUM UP

- India faces major environmental issues like air and water pollution, deforestation, waste problems, climate change, and biodiversity loss.
- Rapid urbanization and industrial growth increase pollution and natural resource depletion.
- Silent Valley Movement protected Kerala’s rainforest from dam construction.
- Sardar Sarovar and Tehri Dam projects caused large-scale displacement and environmental damage.

- Pollution trading and carbon credits are market tools to control emissions.

5.8 FURTHER READING

1. Identify and briefly explain three emerging environmental issues in India.

2. Discuss the impact of climate change on vulnerable ecosystems in India and its implications for communities.

3. Highlight the key challenges associated with electronic waste management in the country.

4. Explain the role of agriculture in contributing to emerging environmental concerns in India.

5. Summarize the implications of rapid urbanization on biodiversity and natural habitats in the country.

6. Analyze the socio-economic and environmental impacts of the changing patterns of water availability in different regions of India. How can water management strategies be adapted to address these challenges?

7. Examine the role of technology in both contributing to and mitigating environmental concerns in India. Discuss specific examples and potential policy interventions.

8. Evaluate the challenges and opportunities associated with the adoption of renewable energy sources in India. How can the transition to clean energy be accelerated?

9. Discuss the interplay between population growth and emerging environmental concerns in India. What policy measures can be implemented to address this dynamic?

10. Explore the impact of biodiversity loss on ecosystem services in India. How can conservation efforts be enhanced to protect and restore biodiversity?

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UNIT 6 : AWARENESS OF SOCIETY WITH RESPECT TO GLOBAL TERMINOLOGY

UNIT STRUCTURE

6.1 Learning Objectives

6.2 Introduction

6.3 Carbon Footprint

- 6.3.1 Carbon Footprint Calculation
- 6.3.2 Carbon Footprint Reduction

6.4 Ecological Footprint , Happy Planet Index Ecosystem Valuation, Earth Overshoot Day

- 6.4.1 Ecological Footprint
- 6.4.2 Happy Planet index
- 6.4.3 Ecosystem valuation
- 6.4.4 Earth Overshoot Day

6.5 Let Us Sum Up

6.6 Further Reading

6.1 LEARNING OBJECTIVES

After successful completion of this unit, you will be able to

- Explore the role of civil society organizations and non-governmental organizations (NGOs) in global environmental governance.
- Evaluate the impact of grassroots movements and citizen initiatives on shaping global environmental policies.
- Analyze the strengths and weaknesses of diverse legal frameworks in addressing global environmental challenges.

- Recognize the significance of diplomatic negotiations and international cooperation in addressing global environmental concerns

6.2 INTRODUCTION

In the contemporary landscape of environmental discourse, recognizing the intricate relationship between society and global terminology is paramount. The unit "Awareness of Society with respect to Global Terminology" delves into the dynamic interplay between societal structures, cultural contexts, and the lexicon employed in international environmental policies. As the world becomes increasingly interconnected, understanding global terminology is essential for comprehending the nuances of environmental challenges, policies, and legislation that transcend national borders.

This unit provides postgraduate students in Environmental Education, Policies & Legislation with a comprehensive framework to navigate the terminology associated with global environmental governance. By fostering awareness of how societies interpret and engage with global terms, students are prepared to critically analyze the impact of policies and legislation on local, national, and international scales. Through an interdisciplinary lens, this unit explores the evolution of global environmental concepts, the role of various stakeholders, and the implications of diverse terminologies on environmental justice, equity, and sustainability.

Global Environmental Terminology:

- Explore and define key terms and concepts used in global environmental discourse.
- Analyze the evolution of terminology and its cultural, historical, and linguistic dimensions. International Environmental Policies and Agreements:

- Examine major international environmental agreements, treaties, and protocols.
- Understand how global terms shape the objectives and implementation of these agreements. Cross-Cultural Perspectives:
- Investigate the influence of cultural, social, and economic factors on the interpretation of global environmental terms.
- Explore how diverse perspectives contribute to the formulation and implementation of policies. Environmental Justice and Equity:
- Delve into the concepts of environmental justice and equity on a global scale.
- Evaluate how global terminology intersects with issues of fairness and inclusivity in environmental policies. Role of Civil Society an NGOs:
- Analyze the impact of civil society organizations and non-governmental organizations (NGOs) in shaping global terminology.
- Understand the role of public engagement in the development and critique of international environmental language. Educational Objectives:
- Develop a sophisticated understanding of the terminology used in international environmental agreements.
- Analyze the socio-cultural factors influencing global environmental discourse.
- Explore the implications of global terminology on policy formulation and legislation.
- Critically assess the role of various stakeholders, including civil society, in shaping and interpreting global environmental concepts.

This unit prepares students to engage in nuanced discussions, contribute to global environmental advocacy, and navigate the complex landscape of international policies and legislation with a keen awareness of societal perspectives and global terminology.

6.3 CARBON FOOTPRINT

According to WHO, a carbon footprint is a measure of the impact your activities have on the amount of carbon dioxide (CO2) produced through the burning of fossil fuels and is expressed as a weight of CO2 emissions produced in tones.The carbon footprint concept is related to and grew out of the older idea of ecological footprint, a concept invented in the early 1990s by Canadian ecologist William Rees and Swiss-born regional planner Mathis Wackernagel at the University of British Columbia.

An ecological footprint is the total area of land required to sustain an activity or population. It includes environmental impacts, such as water use and the amount of land used for food production. In contrast, a carbon footprint is usually expressed as a measure of weight, as in tons of CO2 or CO2 equivalent per year.

6.3.1 CARBON FOOTPRINT CALCULATION:

Carbon footprints are different from a country's reported per capita emissions (for example, those reported under the United Nations Framework Convention on Climate Change). Rather than the greenhouse gas emissions associated with production, carbon footprints focus on the greenhouse gas emissions associated with consumption. They include the emissions associated with goods that are imported into a country but are produced elsewhere and generally take into account emissions associated with international transport and shipping, which is not accounted for in standard national inventories

The per capita carbon footprint is highest in the United States. According to the Carbon Dioxide Information Analysis Center and the United Nations Development Programme, in 2004 the average resident of the United States had a per capita carbon footprint of 20.6 metric tons (22.7 short tons) of CO2 equivalent, Some five to seven times the global average. Averages vary greatly around the world, with higher footprints generally found in residents of developed countries. For example, that same year France had a per capita carbon footprint of 6.0 metric tons (6.6 short tons), whereas Brazil and Tanzania had carbon footprints of 1.8 metric tons (about 2 short tons) and 0.1 metric ton (0.1 short ton) of CO2 equivalent, respectively.

In developed countries, transportation and household energy use make up the largest component of an individual's carbon footprint. For example, approximately 40 percent of total emissions in the United States during the first decade of the 21st century were from those sources. Such emissions are included as part of an individual's "primary" carbon footprint, representing the emissions over which an individual has direct control.

The remainder of an individual's carbon footprint is called the "secondary" carbon footprint, representing carbon emissions associated with the consumption of goods and services. The secondary footprint includes carbon emissions emitted by food production. It can be used to account for diets that contain higher proportions of meat, which requires a greater amount of energy and nutrients to produce than vegetables and grains, and foods that have been transported long distances. The manufacturing and transportation of consumer goods are additional contributors to the secondary carbon footprint. For example,

The carbon footprint of a bottle of water includes the CO2 or CO2 equivalent emitted during the manufacture of the bottle itself plus the amount emitted during the transportation of the bottle to the consumer.

A variety of different tools exist for calculating the carbon footprints for individuals, businesses, and other organizations. Commonly used methodologies for calculating organizational carbon footprints include the Greenhouse Gas

Protocol, from the World Resources Institute and the World Business Council for Sustainable Development, and ISO 14064, a standard developed by the International Organization for Standardization dealing specifically with greenhouse gas emissions. Several organizations, such as the U.S. Environmental Protection Agency, the Nature Conservancy, and British Petroleum, created carbon calculators on the Internet for individuals. Such calculators allow people to compare their own estimated carbon footprints with the national and world averages.

6.3.2 CARBON FOOTPRINT REDUCTION:

Individuals and corporations can take a number of steps to reduce their carbon footprints and thus contribute to global climate mitigation. They can purchase carbon offsets (broadly stated, an investment in a carbon-reducing activity or technology) to compensate for part or all of their carbon footprint. If they purchase enough to offset their carbon footprint, they become effectively carbon neutral. Carbon footprints can be reduced through improving energy efficiency and changing lifestyles and purchasing habits.

Switching one's energy and transportation use can have an impact on primary carbon footprints. For example, using public transportation, such as buses and trains, reduces an individual's carbon foot print when compared with driving.

Individuals and corporations can reduce their respective carbon footprints by installing energy-efficient lighting, adding insulation in buildings, or using renewable energy sources to generate the electricity they require. For example, electricity generation from wind power produces no direct carbon emissions. Additional lifestyle choices that can lower an individual's secondary carbon footprint include reducing one's consumption of meat and switching one's purchasing habits to products that require fewer carbon emissions to produce and transport.

CHECK YOUR PROGRESS

Q: In the context of businesses, why might they calculate and reduce their carbon footprint?

a) To increase greenhouse gas emissions

b) To attract environmentally conscious consumers

c) To maximize energy consumption

d) To contribute to air pollution

Q: What does the term "carbon offsetting" refer to in the context of carbon footprints?

a) Increasing carbon emissions to balance out the carbon footprint

b) Planting trees to absorb carbon dioxide

c) Purchasing credits to compensate for emitted carbon

d) Ignoring the environmental impact of activities

Q: How might the concept of carbon footprint be integrated into environmental policies and legislation?

a) By encouraging increased fossil fuel consumption

b) By setting emission reduction targets for industries

c) By ignoring individual carbon footprints

d) By promoting deforestation practices

Q: What is one potential benefit of raising public awareness about carbon footprints?

a) Increased reliance on non-renewable energy sources

b) Reduced demand for sustainable products

c) Limited engagement in environmental advocacy

d) Adoption of eco-friendly practices

Q: Define the term "carbon footprint" and explain its significance in the context of environmental Sustainability. How does the concept contribute to assessing human impact on the environment?

Q: Enumerate and elaborate on the key components considered when calculating an individual's carbon footprint. How does one calculate the carbon footprint, and why is it essential to include both direct and indirect emissions in the assessment?

Q: Explain the concept of the three scopes of carbon footprint. How do Scopes 1, 2, and 3 differ, and why is it important for organizations to consider all three scopes in their carbon footprint assessments?

Q: Discuss the concept of carbon offsetting and its role in mitigating Carbon footprints. How do carbon offset projects contribute to environmental sustainability, and what are some examples of such projects?

Q: Examine the role of the carbon footprint concept in shaping environmental policies and legislation. How can policies based on carbon footprint assessments contribute to achieving climate-related goals and targets?

6.4 ECOLOGICAL FOOTPRINT, HAPPY PLANET INDEX, ECOSYSTEM VALUATION, EARTH OVERSHOOT DAY

6.4.1 ECOLOGICAL FOOTPRINT

Definition:

According to WWF, ecological footprint can be defined as *"The impact of human activities measured in terms of the area of biologically productive land and water required to produce the goods consumed and to assimilate the wastes generated. More simply, it is the amount of the environment necessary to produce the goods and services necessary to support a particular lifestyle".*

Concept of ecological footprint:

Ecological footprint (EF), measure of the demands made by a person or group of people on global natural resources. It has become one of the most widely used measures of humanity's effect upon the environment and has been used to highlight both the apparent unsustainability of current practices and the inequalities in resource consumption between and within countries.

The ecological footprint (EF) estimates the biologically productive land and sea area needed to provide the renewable resources that a population consumes and to absorb the wastes it generates—using prevailing technology and resource- management practices—rather than trying to determine how many people a given land area or the entire planet can support. It measures the requirements for productive areas (croplands, grazing lands for animal products, forested areas to produce wood products, marine areas for fisheries, built-up land for housing and infrastructure, and forested land needed to absorb carbon dioxide emissions from energy consumption). One can estimate the EF,

Measured in “global hectares” (gha), at various scales for individuals, regions, countries, and humanity as a whole. (One hectare equals 2.47 acres.) The resulting figures can also be compared with how much productive area—or biocapacity is available.

Canadian ecologist William Rees created the EF concept, which Swiss urban planner Mathis Wackernagel further developed in his dissertation under Rees’s supervision. Together, Wackernagel and Rees wrote Our Ecological Footprint (1996), which describes the concept.

According to the National Footprints Accounts (2014), India has an ecological footprint of 1.12 global hectares (gha) per person and a biocapacity of 0.45 gha per person which means it is a ‘biocapacity debtor’ or an ‘ecologically deficit country’ with there being a 148 per cent more demand than supply on its natural resources. There are ways in which ecologically deficit countries can balance themselves including by increasing their net imports over exports, minimising the overuse of their ecosystems and using the global commons by carbon debiting.

6.4.2 HAPPY PLANET INDEX

The Happy Planet Index measures what matters: sustainable wellbeing for all. It tells us how well nations are doing at achieving long, happy, sustainable lives. INDIA achieves a Happy Planet Index Score of 29.2 and ranks 50th of all the countries analyzed.

Why do we need the Happy Planet Index?

Until recently, we have lived with the widespread belief that the world is steadily becoming a better place. An increasingly unstable global economy, rising inequalities, and the pressing challenges of climate change have begun to shatter that belief. Recent surveys reveal that majorities in both the USA and Europe have said they no longer think life is getting better.

One cause of these interlinked crises is the stubborn prioritisation of economic growth as the central objective of government, trumping all other objectives. People vote for political parties that they perceive to be most capable of delivering a strong economy, and policy makers prioritise policies that increase in GDP as a result. Doing so has led to short-termism, deteriorating social conditions, and paralysis in the face of climate change.

In fact, GDP growth on its own does not mean a better life for everyone, particularly in countries that are already wealthy. It does not reflect inequalities in material conditions between people in a country. It does not properly value the things that really matter to people like social relations, health, or how they spend their free time. And crucially, ever-more economic growth is incompatible with the planetary limits we are up against.

How is the Happy Planet Index calculated?

The Happy Planet Index combines four elements to show how efficiently residents of different countries are using environmental resources to lead long, happy lives.

- **Wellbeing**: How satisfied the residents of each country say they feel with life overall, on a scale from zero to ten, based on data collected as part of the Gallup World Poll.
- **Life expectancy:** The average number of years a person is expected to live in each country based on data collected by the United Nations.
- **Inequality of outcomes:** The inequalities between people within a country, in terms of how long they live, and how happy they feel, based on the distribution in each country's life expectancy and wellbeing data. Inequality of outcomes is expressed as a percentage.

- **Ecological Footprint:** The average impact that each resident of a country places on the environment, based on data prepared by the Global Footprint Network. Ecological Footprint is expressed using a standardized unit: global hectares (gha) per person.

$$\text{Happy Planet Index} \approx \frac{(\text{Life expectancy} \times \text{Experienced wellbeing}) \times \text{Inequality of outcomes}}{\text{Ecological Footprint}}$$

6.4.3 ECOSYSTEM VALUATION

Definition:

Ecosystem valuation is an economic process which assigns a value (either monetary, biophysical, or other) to an ecosystem and/or it ecosystem services.

Ecosystem valuation can be a difficult and controversial task, and economists have often been criticized for trying to put a "pricetag" on nature. However, agencies in charge of protecting and managing natural resources must often make difficult spending decisions that involve tradeoffs in allocating resources. These types of decisions are economic decisions, and thus are based, either explicitly or implicitly, on society's values. Therefore, economic valuation can be useful, by providing a way to justify and set priorities for programs, policies, or actions that protect or restore ecosystems and their services.

Types of Values

Economists classify ecosystem values into several types. The two main categories are use values and non-use, or "passive use" values. Whereas use values are based on actual use of the environment, non-use values are values that are not associated with actual use, or even an option to use, an ecosystem or its services.

Thus, use value is defined as the value derived from the actual use of a good or service, such as hunting, fishing, birdwatching , or hiking. Use values may also include indirect uses. For example, an Alaskan wilderness area provides direct use values to the people who visit the area. Other people might enjoy watching a television show about the area and its wildlife, thus receiving indirect use values. People may also receive indirect use values from an input that helps to produce something else that people use directly. For example, the lower organisms on the aquatic food chain provide indirect use values to recreational anglers who catch the fish that eat them.Option value is the value that people place on having the option to enjoy something in the future, although they may not currently use it. Thus, it is a type of use value. For example, a person may hope to visit the Alaskan wilderness area sometime in the future, and thus would be willing to pay something to preserve the area in order to maintain that option.

Similarly, bequest value is the value that people place on knowing that future generations will have the option to enjoy something. Thus, bequest value is measured by peoples' willingness to pay to preserve the natural environment for future generations. For example, a person may be willing to pay to protect the Alaskan wilderness area so that future generations will have the opportunity to enjoy it. Non-use values, also referred to as "passive use" values, are values that are not associated with actual use, or even the option to use a good or service. Existence value is the non-use value that people place on simply knowing that something exists, even if they will never see it or use it. For example, a person might be willing to pay to protect the Alaskan wilderness area, even though he or she never expects or even wants to go there, but simply because he or she values the fact that it exists. It is clear that a single

person may benefit in more than one way from the same ecosystem. Thus, total economic value is the sum of all the relevant use and non-use values for a good or service.

6.4.4 EARTH OVERSHOOT DAY

The concept of Earth Overshoot Day was first conceived by Andrew Simms o the UK think tank New Economics Foundation, which partnered with Global Footprint Network in 2006 to launch the first global Earth Overshoot Day campaign. WWF, the world's largest conservation organization, has participated in Earth Overshoot Day since 2007.

Earth Overshoot Day marks the date when humanity's demand for ecological resources and services in a given year exceeds what Earth can regenerate in that year. We maintain this deficit by liquidating stocks of ecological resources and accumulating waste, primarily carbon dioxide in the atmosphere.

Earth Overshoot Day is hosted and calculated by Global Footprint Network, an international research organization that provides decision-makers with a menu of tools to help the human economy operate within Earth's ecological limits.

To determine the date of Earth Overshoot Day for each year, Global Footprint Network calculates the number of days of that year that Earth's biocapacity suffice to provide for humanity's Ecological Footprint. The remainder of the year corresponds to global overshoot. Earth Overshoot Day is computed by dividing the planet's biocapacity (the amount of ecological resources Earth is able to generate that year), by humanity's Ecological Footprint (humanity's demand for that year) and multiplying by 365, the number of days in a year:

$$\frac{\text{Earth's Biocapacity}}{\text{(Humanity's Ecological Footprint)}} \times 365 = \text{Earth Overshoot Day}$$

Earth Overshoot Day 2023 fell on August 2 and we are observing Earth Overshoot Day 2024 on July 25.

CHECK YOUR PROGRESS

Q: What does the ecological footprint measure?

a) The biodiversity of an ecosystem

b) The total carbon emissions of a country

c) The impact of human activities on the environment

d) The size of a specific geographic area

Q: The Happy Planet Index (HPI) assesses:

a) Economic prosperity

b) Environmental sustainability and human well-being

c) Global biodiversity

d) Carbon emissions per capital

Q: In ecosystem evaluation, what does the term "biodiversity" refer to?

a) The total number of individuals in an ecosystem

b) The variety of species and ecosystems in a region

c) The rate of carbon sequestration

d) The level of soil fertility in an ecosystem

Q: Earth Overshoot Day marks:

a) The beginning of spring

b) The day when Earth's resources are used up for the year

c) The start of the agricultural season

d) The peak of global carbon emissions

Q: Explain the concept of ecological footprints. How are they calculated, and what insights do they provide into human impact on the environment? Provide examples to illustrate the application of ecological footprints in environmental assessment.

Q: Discuss the Happy Planet Index (HPI) as a measure of human well-being and environmental sustainability. How does HPI differ from traditional indicators of development, and what are its strengths and limitations?

Q: Define ecosystem evaluation and its significance in environmental management. Discuss the concept of ecosystem services and provide examples of how they

contribute to human well-being.

Q: Explain the concept of Earth Overshoot Day and its implications for global sustainability. How is it calculated, and what measures can be taken to shift Earth Overshoot Day towards the end of the year?

6.5 LET US SUM UP

- Global environmental terminology is essential for understanding and addressing cross-border environmental challenges and policies.
- Environmental concepts and terms evolve with cultural, social, and linguistic factors influencing their interpretation worldwide.
- Carbon footprint measures the total greenhouse gas emissions caused directly and indirectly by human activities, typically expressed in tons of CO_2.
- Carbon footprints can be reduced by improving energy efficiency, lifestyle adjustments, using renewable resources, and purchasing carbon offsets.
- Ecological footprint estimates the biologically productive land and sea area needed to meet human demands and absorb waste, highlighting resource inequalities.
- The Happy Planet Index (HPI) assesses sustainable well-being by combining life expectancy, well-being, inequality of outcomes, and ecological footprint.
- Ecosystem valuation assigns economic, biophysical, or other values to ecosystems and their services to support informed environmental decisions.
- Use values and non-use values reflect both direct benefits from ecosystems and the value of their mere existence or potential future use.
- Earth Overshoot Day marks the annual date when human consumption surpasses Earth's regenerative capacity, emphasizing the need for sustainable practices.
- Civil society organizations, NGOs, and public engagement play

a key role in shaping global environmental discourse and influencing policy outcomes.

6.6 FURTHER READING

1. Define the term "sustainable development" and explain its significance in the context of global environmental discourse.
2. Briefly discuss the concept of "carbon footprint" and its relevance to individual and collective actions for environmental conservation.
3. Define "biodiversity" and explain why it is considered crucial for the health and stability of ecosystems worldwide.
4. Explain the term "greenwashing" and provide examples of how companies might engage in this practice.
5. Define "environmental justice" and discuss its importance in addressing environmental issues on a global scale.
6. Analyze the role of international agreements and treaties, such as the Paris Agreement, in shaping global environmental policies. How do these agreements impact individual nations and their environmental strategies?
7. Discuss the concept of the "tragedy of the commons" and its relevance to global environmental challenges. Provide examples and explore potential solutions.
8. Examine the role of non-governmental organizations (NGOs) in addressing global environmental issues. How do these organizations contribute to shaping public awareness and policies?
9. Explore the concept of "circular economy" and its potential benefits for global sustainability. How can this concept be integrated into national policies?
10. Discuss the challenges and opportunities associated with achieving the United Nations Sustainable Development Goals (SDGs) on a global scale. How can countries collaborate to meet these goals?*** ***** ***

UNIT 7 : ENVIRONMENTAL AWARENESS

UNIT STRUCTURE

7.1 Learning Objectives

7.2 Introduction

7.3 Stockholm Conference (1972)

7.3.1 United Nations Conference On The Human Environment (1972) Unche

7.4 United Nations World Commission On Environment And Development (WCED) Our Common Future Report (1987)

7.5 Let us Sum Up

7.6 Further Reading

7.1 LEARNING OBJECTIVES

After successful completion of this unit, you will be able to

- Explore strategies for community engagement and environmental advocacy to address local environmental concerns.
- Analyze case studies highlighting successful environmental conservation projects, sustainable development initiatives, and challenges faced in different regions.
- Evaluate the effectiveness of environmental education programs in promoting awareness and behavioral change.
- Assess the impact of educational initiatives on community sustainability

7.2 INTRODUCTION

In the contemporary landscape of global challenges, the unit on "Environmental Awareness" serves as a cornerstone in the pursuit of fostering informed, conscientious leaders in the realm of

Environmental Education, Policies & Legislation at the postgraduate level. This unit goes beyond the mere dissemination of facts, aiming to ignite a profound awareness of the intricate web of connections between human actions and the health of our planet.

Foundations of Environmental Awareness: Delve into the foundational principles that underpin environmental awareness, encompassing ecological concepts, systems thinking, and the delicate balance within ecosystems.

Global Environmental Challenges: Explore and analyze the myriad challenges that define our global environmental landscape, from climate change and biodiversity loss to pollution and resource depletion.

Interconnectedness and Systems Thinking: Emphasize the interconnectedness of environmental systems and the importance of adopting a systems thinking approach

Human Impact and Ecological Footprints: Investigate the ways in which human activities impact the environment, with a focus on understanding and calculating ecological footprints.

Environmental Policies and Legislation: Familiarize yourself with national and international environmental policies and legislation, examining their role in shaping sustainable practices and mitigating environmental threats.

Role of Environmental Education: Recognize the pivotal role of environmental education in empowering individuals and communities to make informed decisions and contribute to positive environmental change.

Community Engagement and Advocacy: Explore strategies for community engagement and environmental advocacy, emphasizing the importance of Collective action in addressing local and global environmental concerns.

Ethical Considerations and Cultural Perspectives: Examine the ethical considerations inherent in environmental decision-making and appreciate the cultural perspectives that influence attitudes toward nature and sustainability.

Educational Objectives:

- Develop a comprehensive understanding of key environmental concepts and their real-world implications.
- Analyze and critically evaluate the global environmental challenges facing society today.
- Recognize the interconnected nature of environmental systems and the impact of human activities on ecological balance.
- Explore the role of policies and legislation in promoting environmental sustainability.
- Appreciate the significance of environmental education in shaping environmentally literate and responsible citizens.
- Cultivate effective communication and advocacy skills for engaging with diverse audiences on environmental issues.

This unit aims to equip postgraduate students with the knowledge, awareness, and skills necessary to navigate the complex intersections of environmental awareness, education, policies, and legislation. It encourages a proactive and holistic approach to addressing environmental challenges in the pursuit of a sustainable and resilient future.

7.3 STOCKHOLM CONFERENCE (1972)

7.3.1 UNITED NATIONS CONFERENCE ON THE HUMAN ENVIRONMENT (1972)-UNCHE

Introduction:

In response to the growing environmental movement of the 1960s, many nations began to take actions to protect the environment within their borders. By the early 1970s, however, governments began to realize that pollution did not stop at their borders. International consensus and cooperation were required to tackle environmental issues, which affected the entire world. In 1972, the United Nations Conference on the Human Environment (UNCHE) was convened to address issues concerning the environment and sustainable development. UNCHE, also known as the Stockholm Conference, linked environmental protection with sustainable development. The Stockholm Conference also produced concrete ideas on how governments could work together to preserve the environment. The concepts and plans developed by the Stockholm Conference have shaped every international conference and treaty on the environment over the last 35 years.

Historical Background and Scientific Foundations:

The United Nations Conference on the Human Environment (UNCHE), held in Stockholm, Sweden, in 1972, was the first major international conference on the environment. The United Nations General Assembly convened the UNCHE at the request of the Swedish government. Representatives from 113 nations and over 400 non-governmental organizations (NGOs) attended the Stockholm Conference.

The gathering produced the Declaration of the Conference on the Human Environment and an action plan. The declaration noted that many factors harm the environment, including population growth, developing economies, and technological and industrial advancements. Despite the pressure placed on the environment, the declaration proffered 26 principles “to inspire and guide the peoples of the world in the preservation and enhancement of the human environment.”

The Declaration of the Conference stated that every human has the right to enjoy a clean and healthy environment. With this right, however, comes the responsibility to preserve the environment for future generations. The document noted that humans must properly manage wildlife and their ecosystems to ensure their continued survival, and it sought an end to the discharge of pollution into the environment. The declaration also called on industrialized nations to provide financial and technological assistance to developing nations to enable them to develop their economies in an environmentally responsible manner.

The declaration was the first major international document to recognize that both developing and industrialized economies contribute to environmental problems, and it noted that most environmental problems in developing economies occur because of underdevelopment. Poverty in developing nations leads to poor health, poor sanitation, and release of toxic chemicals. These conditions release harmful human, animal, and chemical products into the environment. Developing economies also often seek advancement of the economy with little regard for environmental regulation. Industrialized nations contribute to environmental problems through technological advancements and industrialization. Energy production, automobile emissions, and factory production release greenhouse gases and other chemicals into the environment.

Whereas the Declaration of the Convention contained many lofty ideals, the action plan of the Stockholm Conference contained 109 specific recommendations for achieving these goals. The action plan presented 69 recommendations on how governments, intergovernmental agencies, and NGOs could work together to implement environmental protection strategies. The action plan also contained 16 proposals for dealing with pollution in general. Recommendation 70 contains one of the first references to global climate change contained in an international document. It recommends that governments be "mindful of activities in which there is an appreciable risk of effects on the climate."

The action plan also called for establishing international standards for pollutants after scientific research into the effect of certain pollutants on the environment.

The action plan then recommended the creation of a network of national and international pollution monitoring agencies. The United Nations founded the United Nations Environment Programme (UNEP) in 1972 to coordinate its environmental initiatives and to provide support to developing nations on environmental issues.

Impacts and Issues:

The objectives and action plans produced by the Stockholm Conference have inspired every subsequent international conference on the environment. In 1983, the United Nations convened the World Commission on Environment and Development (WCED), also called the Brundtland Commission. The Brundtland Commission discussed and devised international and national strategies for protecting the environment and promoting sustainable development. The Brundtland Commission published its final report, Our Common Future, in 1987. Our Commo Future states that governments could not address environmental

protection separately from the related crises of economic development and energy production. Our Common Future outlined a plan for dealing with these interlocking crises.

The Stockholm Conference also laid the foundation for the United Nations Conference on Environment and Development (UNCED), commonly called the Earth Summit. In June 1992, representatives from 172 nations convened in Rio de Janeiro, Brazil, for the unprecedented Earth Summit, which included 108 heads of state, 2,400 representatives from various non-governmental organizations (NGOs), and nearly 10,000 journalists. An additional 17,000 NGO representatives attended a parallel NGO forum that provided recommendations to the Earth Summit.

The massive interest and participation in the Earth Summit indicated a shift in global attitudes toward the environment. Scientific evidence gathered in the second half of the twentieth century indicated that human activity affected the environment and climate. The scientific evidence also revealed that pollution and depletion of natural resources that occurred in one country could have a profound effect on the environment of other nations or even the entire planet.

CHECK YOUR PROGRESS

Q: Which fundamental environmental principle was established during the

Stockholm Conference, emphasizing the need for sustainable development?

a) The Precautionary Principle

b) The Polluter Pays Principle

c) The Principle of Common But Differentiated Responsibilities

d) The Principle of Intergenerational Equity

Q: What was the follow-up action to the Stockholm Conference that led to the creation of the United Nations Environment Programme (UNEP)?

a) Rio Earth Summit

b) Kyoto Protocol

c) Basel Convention

d) Montreal Protocol

Q: Why is the Stockholm Conference considered a landmark event in the history of environmental governance?

a) It established binding international treaties on climate change

b) It marked the first global effort to address environmental issues at the highest political level

c) It focused exclusively on regional environmental challenges

d) It initiated a framework for economic development without considering environmental concerns

Q: Which of the following environmental dimensions was explicitly addressed in discussions at the Stockholm Conference?

a) Space exploration

b) Spiritual well-being

c) Economic growth

d) Human health and the environment

Q: Provide an overview of the background and objectives of the Stockholm Conference (UNCHE) held in 1972. What were the main environmental concerns that prompted the convening of this conference?

Q: Explain the significance of the Stockholm Declaration adopted during the conference. What principles and commitments were articulated in the

Declaration, and how did it contribute to shaping subsequent international environmental policies?

Q: Identify and discuss the key environmental issues that were addressed during the Stockholm Conference. How did the discussions and resolutions contribute to raising global awareness about these issues?

Q: Enumerate and elaborate on the principles established at the Stockholm Conference. How do these principles guide international efforts in environmental conservation and sustainable development?

Q: Discuss the legacy of the Stockholm Conference and the follow-up actions that emerged from it. How did the conference contribute to shaping subsequent international environmental conferences and agreements?

7.4 UNITED NATIONS WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT (WCED) OUR COMMON FUTURE REPORT (1987)

Introduction:

The World Commission on Environment and Development (WCED), alsocalled the Brundtland Commission after its Chairman Gro Harlem Brundtland (a Norwegian physician), was an international commission that discussed and devised strategies for protecting the environment and promoting sustainable development. The Brundtland Commission published its final report, Our Common Future, in 1987.

Our Common Future stated that governments could not address environmental protection separately from related crises, such as economic development and energy production. Our Common Future also outlined a blueprint for dealing with these interlocking crises simultaneously. The findings and proposals of Our Common Future have shaped international environmental policy for the last two decades.

Historical Background and Scientific Foundations

The World Commission on Environment and Development was not the first United Nations conference to address environmental issues. In 1972, the United Nations convened the United Nations Conference on the Human Environment in Stockholm, Sweden. Representatives from 113 nations and over 400 non-governmental agencies (NGOs) attended the Stockholm Conference. This conference, often called the Stockholm Conference, was the first international conference to address environmental problems directly.

The Stockholm Conference produced the Declaration of the Conference on the Human Environment, which stated that every person deserves a clean, healthy environment. The declaration recognized that unchecked technological and scientific advancements permitted humans to "transform the environment in countless ways and on an unprecedented scale." The Stockholm Conference declaration also stated that environmental protection is one of the major humanitarian and economic issues facing the world.

The Declaration of the Conference on the Human Environment was the first major international document to recognize that environmental problems originate from both developing and developed economies. The World Commission on Environment and Development and every subsequent United Nations conference on the environment have sought to address these seemingly contradictory sources of environmental degradation. The Stockholm Conference Declaration noted that most environmental problems in developing economies occur because of underdevelopment. Poverty in these nations leads to poor health, poor sanitation, and toxic cleanup, which place harmful human, animal, and chemical products into the environment.

Governments with developing economies also often seek advancement of the economy with little regard for environmental regulation .Industrialized nations contribute to environmental problems through technological advancements and industrialization.

The Stockholm Conference also produced an action plan, which contained 109 specific recommendations for improving the environment, including limiting the use of ozone- depleting chlorofluorocarbons (CFCs). The action plan also called for a nations to provide economic and technological assistance to developing nations so the developing nations could grow their economies in an environmental responsible manner. reduction of marine pollution. Finally, the action plan called on industrialized nations to provide economic and technological assistance to developing nations so the developing nations could grow their economies in an environmental responsible manner.

In 1983, the United Nations General Assembly established the United Nations World Commission on Environment and Development (WCED), also called the Brundtland Commission, with the passage of Resolution Under the requirements of Resolution 38/161, the Brundtland Commission served as an independent body outside control of the United Nations and national governments. The Brundtland Commission addressed three major environmental issues, as mandated by Resolution 38/161.

First, the commission examined critical environmental and developmental issues and formulated proposals for dealing with these issues. Second, the commission proposed new forms of international cooperation on these issues. Finally, the commission addressed ways to raise awareness of environmental issues and commitments to address those issues from individuals, NGOs, governments, and intergovernmental agencies.

In 1987, after three years of information gathering and debate, the Brundtland Commission issued Our Common Future, a report containing the commission's findings and recommendations.

Our Common Future asserted that any international environmental initiative must address sustainable development. Our Common Future defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Every United Nations environmental convention since the release of Our Common Future, including Earth Summit 1992 and Earth Summit 2002, has embraced the idea of sustainable development as a vital aspect of environmental policy.

Our Common Future asserted that sustainable development was the only solution to the interlocking crises occurring in environmental preservation, economic development, and energy production. The report asserted that any attempt to address problems occurring in only one of these areas would further exacerbate problems in the other two areas. Our Common Future stressed that governments cannot manage these interlocking crises on a local or national basis. The report stated that the only effective remedy is an international approach that simultaneously addresses all three crises.

The report stated that large-scale farming in industrialized nations harmed the environment through increased pesticide use, destruction of ecosystems through clearing land, and overuse of the soil. Industrialized nations often donate this food surplus to developing nations. This practice creates insecurity in the food supply by inhibiting the development of agriculture in the developing nations. Our Common Future argued that a better practice would be

Technological assistance to developing nations that would allow those nations to develop their own environmentally responsible food supplies.

Our Common Future addressed other sustainable development and environmental preservation methods. Nations could reduce energy consumption by using technology to create more energy-efficient appliances, automobiles, and machines. Cleaner forms of energy production, such as wind and solar energy, would also reduce the pollution and greenhouse gases emitted by fossil fuels. The report also suggested that developing nations design and implement urban planning initiatives to deal with their growing populations. Rapid urban population growth will place an enormous strain on the environment and the economies of developing nations in the twenty-first century.

Issues and Impacts

Our Common Future has served as the blueprint for international action on environmental issues. Every major international convention on the environment since 1987, including the United Nations Conference on Environment and Development (Earth Summit 1992) and the World Summit on Sustainable Development (Earth Summit 2002), has drawn heavily from the principles espoused in Our Common Future.

Earth Summit 1992 produced the Rio Declaration on Environment and Development and Agenda 21. The Rio Declaration on Environment and Development states the rights and responsibilities of nations toward environmental protection and sustainable development. The Rio Declaration states that nations have the right to exploit natural resources within their borders if their actions do not affect the environment in other

nations. Furthermore, the Rio Declaration calls on all governments to develop plans to preserve the environment and natural resources for future generations.

Agenda 21, like Our Common Future, addresses environmental issues through detailed social and economic proposals. Agenda 21 proposes addressing environmental issues through poverty reduction, conservation of natural resources, deforestation prevention, promotion of sustainable agriculture, modification of production and consumption patterns, and protection of the atmosphere and oceans.

Earth Summit 2002 produced the Johannesburg Declaration, which reiterated many of the points contained in the Rio Declaration and Agenda 21. The Johannesburg Declaration contains a more general statement about the environment and sustainable development, and it calls for an end to all conditions that threaten sustainable development, including drug use, corruption, terrorism, ethnic intolerance, and natural disasters. The Johannesburg Declaration, however, does not contain specific proposals for addressing many of these issues.

CHECK YOUR PROGRESS

Q: According to the Brundtland Report, what are the three interconnected pillars of sustainable development?

a) Economic growth, political stability, and technological advancement

b) Environmental protection, social equity, and economic development

c) Scientific innovation, cultural diversity, and political unity

d) International cooperation, poverty reduction, and resource exploitation

Q: In the context of sustainable development, what is the suggested timeframe for planning and decision-making, according to the Brundtland Report?

a) Short-term only, focusing on immediate needs

b) Medium-term, addressing issues within the next 10 years

c) Long-term, considering the well-being of future generations

d) Indefinite, without specifying a timeframe

Q: According to the Brundtland Report, what role do governments play in achieving sustainable development?

a) Governments are solely responsible for economic growth

b) Governments are facilitators, providing incentives for environmental conservation

c) Governments should not be involved in environmental matters

d) Governments have a central role in shaping policies that balance economic, social, and environmental objectives

Q: How did the Brundtland Report influence international policies and legislation related to environmental sustainability and development?

a) It had minimal impact on policy development

b) It led to the creation of the United Nations Environment Programme (UNEP)

c) It contributed to the development of the Kyoto Protocol

d) It laid the foundation for the Earth Summit in Rio de Janeiro in 1992

Q: Provide an overview of the context that led to the establishment of the United Nations World Commission on Environment and Development (WCED) and the objectives it aimed to achieve through the "Our Common Future" report in 1987.

Q: Define the concept of sustainable development as articulated in the Brundtland Report. How does it differ from traditional notions of development, and what are the key principles underlying this concept?

Q: Explain the three interconnected pillars of sustainable development as identified in the Brundtland Report. How do these pillars contribute to a holistic approach to development?

Q: Discuss the role that governments play in achieving sustainable development, according to the Brundtland Report. How can governments effectively balance economic growth, social equity, and environmental conservation?

Q: Examine the global impact of the "Our Common Future" report on environmental policies and legislation. How did the report influence international efforts to address environmental challenges and shape subsequent conferences and agreements?

7.5 LET US SUM UP

- Environmental awareness links human activities with environmental health.
- Stockholm Conference (1972) was the first global environmental meet.
- It declared the right to a clean, healthy environment for all.
- UNEP was established for global environmental coordination.
- Brundtland Commission (1987) introduced the idea of sustainable development.
- Earth Summits of 1992 and 2002 advanced global environmental action.

7.6 FURTHER READING

1. Define environmental awareness and explain its significance in the context of sustainable development.
2. Discuss the key components of a successful environmental awareness campaign.
3. Identify and explain three major environmental issues that necessitate increased public awareness.
4. Briefly discuss the role of media in shaping environmental awareness among the public.
5. Explain how environmental education programs contribute to fostering environmental awareness.
6. Analyze the current state of environmental awareness in your country. What
   are the major factors influencing public perception and knowledge of environmental issues?
7. Examine the role of formal education institutions in promoting environmental awareness. How can curriculum design contribute to a more environmentally conscious society?
8. Discuss the impact of social media on environmental awareness. How can online platforms be effectively utilized to disseminate information and engage the public in environmental issues?
9. Evaluate the effectiveness of government policies and initiatives in promoting environmental awareness. Identify successful examples and areas that need improvement.
10. Explore the challenges of translating environmental awareness into sustainable behaviors. How can behavior change campaigns be designed to address these challenges?

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UNIT 8 : RIO DE JANEIRO- CONFERENCE

UNIT STRUCTURE

8.1 Learning Objectives

8.2 Introduction

8.3 "Our Common Future" Rio De Janerio - Conference (UNCED).

8.4 Agenda Of 'Earth Summit' At Rio De Janeiro Conference (UNCED), 1992

8.5 Let us Sum Up

8.6 Further Reading

8.1 LEARNING OBJECTIVES

After successful completion of this unit, you will be able to

- Analyze the role and recognition of indigenous peoples and local communities in the Earth Summit's discussions and outcomes
- Explore the financial mechanisms discussed at UNCED to support sustainable development
- Assess the impact of the Rio de Janeiro Conference on subsequent international environmental developments
- Investigate the implementation of Local Agenda 21 initiatives at the local and regional levels, understanding the role of communities in sustainable development

8.2 INTRODUCTION

The unit on the Rio de Janeiro Conference, also known as the United Nations Conference on Environment And Development (UNCED), serves as a pivotal exploration into the evolving landscape of global environmental

governance. This unit, situated within the framework of Environmental Education, Policies & Legislation at the postgraduate level, delves into the landmark event that took place in Rio de Janeiro in 1992.

- **Historical Context:** Situating the Rio de Janeiro Conference within the historical trajectory of global environmental governance, the unit explores the pivotal moments and developments that led to the convening of UNCED.

- **Agenda and Objectives:** Examining the comprehensive agenda set forth by UNCED, the unit explores the multifaceted objectives aimed at addressing pressing environmental challenges while fostering sustainable development on a global scale.

- **Earth Summit Outcomes**: Delving into the outcomes of the Earth Summit, participants will dissect the conventions and agreements that emerged from the conference, including the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC).

- **Sustainable Development Goals**: A critical aspect of the unit involves understanding and evaluating the conceptualization of sustainable development as outlined in the Rio Declaration and Agenda 21, emphasizing the interconnected dimensions of environmental preservation, social equity, and economic prosperity.
- **Stakeholder Involvement**: Analyzing the diverse roles played by governments, non-governmental organizations (NGOs), the private sector, and other stakeholders during the negotiations and subsequent implementation of agreements forms a significant component of this unit.

- **Common But Differentiated Responsibilities (CBDR):** Exploring the principle of Common But Differentiated Responsibilities (CBDR) and respective capabilities, the unit aims

To unravel the complexities of international environmental cooperation and collective responsibility.

- **Indigenous Peoples and Local Communities**: A focal point of study includes the recognition and involvement of indigenous peoples and local communities in the Earth Summit's discussions, with a specific emphasis on the development of the Forest Principles.
- **Financial Mechanisms for Sustainable Development:** Investigating financial mechanisms established during UNCED, such as the Global Environment Facility (GEF), participants will gain insights into funding strategies designed to support global sustainability goals.
- **Challenges and Criticisms:** Confronting the challenges encountered during the Earth Summit, the unit encourages a critical analysis of criticisms aimed at assessing the effectiveness of agreements and the subsequent pursuit of sustainable development objectives.
- **Post-Rio Developments and Legacy:** Reflecting on the enduring impact of UNCED, the unit explores its legacy and ongoing relevance, considering its influence on subsequent international environmental conferences, policies, and global sustainability efforts.

8.3 "OUR COMMON FUTURE" RIO DE JANERIO- CONFERENCE (UNCED).

The United Nations Conference on Environment and Development, also known as the "Earth Summit" or the "Rio Summit," was a major international conference convened in Rio de Janeiro, Brazil, from 3 to 14 June 1992.

It brought together representatives of 178 governments, thousands of non-governmental organizations (NGOs) and business leaders, as well as members of the press from around the world. The conference was intended to address

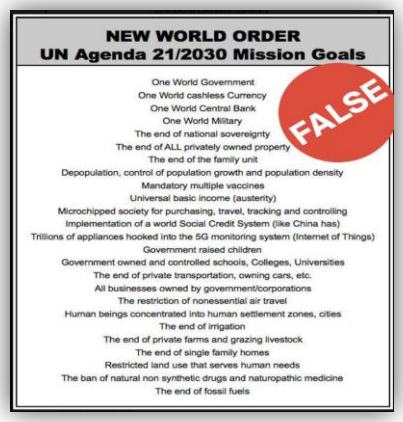
The urgent environmental and development issues facing the planet and to set a new agenda for international cooperation on sustainable development.

Rio Earth Summit 1992

The Earth Summit was the culmination of a long process of international environmental diplomacy that began with the 1972 United Nations Conference on the Human Environment in Stockholm. In the two decades that followed, the world had witnessed a growing awareness of the interconnectedness of environmental and development issues. The 1980s in particular saw a number of major environmental disasters, including the Chernobyl nuclear accident, the Exxon Valdez oil spill, and the Bhopal gas tragedy. These events helped to focus public attention on the need for urgent action to address environmental problems.

At the same time, there was a growing recognition that environmental problems could not be solved in isolation from development issues. Poverty, underdevelopment, and unsustainable patterns of production and consumption were all seen as major contributors to environmental degradation. The Earth Summit was therefore designed to address the twin challenges of environment and development, and to set a new agenda for international cooperation on sustainable development.

The Earth Summit was a landmark event in the history of international environmental diplomacy. It resulted in the adoption of three groundbreaking agreements



Agenda 21

The Rio Declaration was a set of 27 principles that outlined a new vision for sustainable development. It emphasized the need to integrate environmental concerns into all aspects of decision-making, and it called for a global partnership between developed and developing countries to address environmental challenges.

Agenda 21 was a comprehensive action plan for sustainable development. It contained over 2,000 recommendations for action at the local, national, and international levels. Agenda 21 addressed a wide range of issues, including poverty eradication, environmental protection, economic development, and social equity.

The Convention on Biological Diversity was a legally binding agreement that aimed to conserve biological diversity and ensure the sustainable use of biological resources. The convention was a landmark agreement, as it was the first global treaty to focus specifically on the issue of biodiversity.

The Earth Summit was also a major catalyst for the development of national sustainable development strategies. In the years following the conference, many countries

around the world adopted their own sustainable development plans.

The Earth Summit was a watershed moment in the history of international environmental diplomacy. It helped to raise global awareness of the urgent need for sustainable development, and it set a new agenda for international cooperation on environmental issues. The agreements that were adopted at the conference continue to provide a framework for action today.

In addition to the three agreements, the Earth Summit also resulted in the adoption of a number of other important documents, including the Forest Principles, the Climate Change Convention, and the Principles of International Environmental Law.

The Earth Summit was a major success in terms of its achievements. It helped to raise global awareness of the urgent need for sustainable development, and it set a new agenda for international cooperation on environmental issues. The agreements that were adopted at the conference continue to provide a framework for action today.

However, the Earth Summit also had its critics. Some argued that the agreements that were adopted were too weak and non-binding. Others argued that the conference did not do enough to address the root causes of environmental problems, such as poverty and inequality.

Despite these criticisms, the Earth Summit was a landmark event in the history of international environmental diplomacy. It helped to lay the foundation for future international cooperation on sustainable development.

The United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit, was a major international conference convened in Rio de Janeiro, Brazil, from 3 to 14 June 1992. It brought together representatives of 178 governments, thousands of non-governmental organizations (NGOs) and business leaders, as well as members of the press from around the world.

The conference was intended to address the urgent environmental and development issues facing the planet and to set a new agenda for international cooperation on sustainable development.

Background

The Earth Summit was the culmination of a long process of international environmental diplomacy that began with the 1972 United Nations Conference on the Human Environment in Stockholm. In the two decades that followed, the world had witnessed a growing awareness of the interconnectedness of environmental and development issues. The 1980s in particular saw a number of major environmental disasters, including the Chernobyl nuclear accident, the Exxon Valdez oil spill, and the Bhopal gas tragedy. These events helped to focus public attention on the need for urgent action to address environmental problems.

At the same time, there was a growing recognition that environmental problems could not be solved in isolation from development issues. Poverty, underdevelopment, and unsustainable patterns of production and consumption were all seen as major contributors to environmental degradation. The Earth Summit was therefore designed to address the twin challenges of environment and development, and to set a new agenda for international cooperation on sustainable development.

Conference outcomes The Earth Summit was a landmark event in the history of international environmental diplomacy. It resulted in the adoption of three groundbreaking agreements:

1. **The Rio Declaration on Environment and Development:** This is a set of 27 principles that outline a new vision for sustainable development. The Rio Declaration was a landmark event in the history of international environmental diplomacy, as it was the first global agreement to explicitly link environmental protection to human development.

2. **Agenda 21:** This is a comprehensive plan of action for sustainable development. Agenda 21 contains over 2,000 recommendations for action at the local, national, and international levels. It is the most ambitious and wide - ranging plan of action for sustainable development that has ever been created.
3. **The Convention on Biological Diversity (CBD):** This is a legally binding agreement that aims to conserve biological diversity and ensure the sustainable use of biological resources. The CBD was the first global agreement to focus specifically on the issue of biodiversity.

In addition to the three agreements, the Earth Summit also resulted in the adoption of a number of other important documents, including the Forest Principles, the Climate Change Convention, and the Principles of International Environmental Law.

Impacts The Earth Summit was a major success in terms of its achievements. It helped to raise global awareness of the urgent need for sustainable development, and it set a new agenda for international cooperation on environmental issues. The agreements that were adopted at the conference continue to provide a framework for action today.

Earth Summit Rio de Janeiro 1992'

However, the Earth Summit also had its critics. Some argued that the agreements that were adopted were too weak

And non-binding. Others argued that the conference did not do enough to address the root causes of environmental problems, such as poverty and inequality.

Despite these criticisms, the Earth Summit was a watershed moment in the history of international environmental diplomacy. It helped to lay the foundation for future international cooperation on sustainable development.

Legacy The Earth Summit left a lasting legacy on international environmental policy and discourse. It set the stage for a number of important international agreements, including the Kyoto Protocol and the Paris Agreement on climate change. It also led to the creation of a number of important institutions, such as the Global Environment Facility (GEF) and the Commission on Sustainable Development (CSD).

The Earth Summit is still relevant today, and its agreements continue to provide a framework for international cooperation on sustainable development. The world is facing a number of urgent environmental and development challenges, including climate change, biodiversity loss, and poverty. The Earth Summit showed that the world can come together to address these challenges, and it provides a model for future cooperation.

CHECK YOUR PROGRESS

Q. What is the primary document associated with the concept of sustainable development from the Rio de Janeiro Conference (UNCED)?

a. The Earth Charter
b. The Kyoto Protocol
c. Agenda 21
d. The Montreal Protocol

Q. Who chaired the World Commission on Environment and Development (WCED) and played a key role in the preparation of "Our Common Future"?

a. Maurice Strong
b. Rachel Carson
c. Gro Harlem Brundtland
d. Wangari Maathai

Q. Which of the following principles was NOT emphasized in "Our Common Future"?

a. Intergenerational Equity
b. Common But Differentiated Responsibilities (CBDR)
c. Economic Supremacy
d. Integration of Environmental and Development Goals

Q. What is the significance of the Rio Declaration in the context of UNCED?

a. It outlines the principles of the Convention on Biological Diversity.
b. It establishes the goals for reducing greenhouse gas emissions.
c. It enunciates a set of principles for sustainable development.
d. It outlines guidelines for the management of hazardous waste.

Q: Explain the concept of sustainable development as presented in "Our Common Future." Discuss its key components and how it integrates environmental, social, and economic considerations.

Q: Analyze the role of "Our Common Future" in influencing the agenda of the Rio de Janeiro Conference (UNCED) in 1992. How did the principles outlined in the report shape international discussions and agreements during the conference?

8.4 AGENDA OF 'EARTH SUMMIT' AT RIO DE JANEIRO CONFERENCE (UNCED), 1992

The United Nations Conference on Environment and Development (UNCED), also known as the 'Earth Summit', was held in Rio de Janeiro, Brazil, from 3-14 Jun 1992. This global conference, held on the occasion of the 20th anniversary of the first Human Environment Conference in Stockholm, Sweden, in 1972, brought together political leaders, diplomats, scientists, representatives of the media and non-governmental organizations (NGOs) from 179 countries for a massive effort to focus on the impact of human socio-economic activities on the environment. A 'Global Forum' of NGOs was also held in Rio de Janeiro at the same time , bringing together an unprecedented number of NGO representatives, who presented their own vision of the world's future in relation to the environment and socio-economic development.

The Rio de Janeiro conference highlighted how different social, economic and environmental factors are interdependent and evolve together, and how success in one sector requires action in other sectors to be sustained over time. The primary objective of the Rio 'Earth Summit' was to produce a broad agenda and a new blueprint for international action on environmental and development issues that would help guide international cooperation and development policy in the twenty- first century.

The 'Earth Summit' concluded that the concept of sustainable development was an attainable goal for all the people of the world, regardless of whether they were at the local, national, regional or international level.

It also recognized that integrating and balancing economic, social and environmental concerns in meeting our needs is vital for sustaining human life on the planet and that such an integrated approach is possible. The conference also recognized that integrating and balancing economic, social and environmental dimensions required new perceptions of the way we produce and consume, the way we live and work, and the way we make decisions. This concept was revolutionary for its time, and it sparked a lively debate within governments and between governments and their citizens on how to ensure sustainability for development.

One of the major results of the UNCED Conference was Agenda 21, a daring program of action calling for new strategies to invest in the future to achieve overall sustainable development in the 21st century. Its recommendations ranged from new methods of education, to new ways of preserving natural resources and new ways of participating in a sustainable economy.

The 'Earth Summit' had many great achievements: the Rio Declaration and its 27 universal principles, the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity; and the Declaration on the principles of forest management. The 'Earth Summit' also led to the creation of the Commission on Sustainable Development, the holding of first world conference on the sustainable development of small island developing States in 1994, and negotiations for the establishment of the agreement on straddling stocks and highly migratory fish stocks. The 21 agendas of of 'Earth Summit' at Rio de Janeiro conference (UNCED), 1992 are as follows –

1. **Preamble:** Set the tone for sustainable development by recognizing the interconnectedness of environmental, social, and economic challenges.

2. **Social and Economic Dimensions:** Emphasized the need for poverty eradication, promoting sustainable human settlements, and integrating social and economic policies with environmental sustainability.
3. **Conservation and Management of Resources:** Called for the sustainable management of land resources, forests, biodiversity, and freshwater resources.
4. **Agriculture:** Addressed sustainable agricultural practices, promoting food security, and supporting rural development.
5. **Combating Deforestation:** Urged measures to combat deforestation, protect fragile ecosystems, and promote sustainable forestry practices.
6. **Conservation of Biodiversity**: Highlighted the importance of conserving biological diversity, promoting sustainable use, and equitable sharing of benefits.
7. **Protection of Oceans, Seas, and Coastal Areas**: Addressed the need for integrated management of marine and coastal environments, including measures to prevent marine pollution.
8. **Protection of the Atmosphere:** Focused on combating climate change, reducing emissions of harmful substances, and protecting the ozone layer.
9. **Integrated Approach to the Planning and Management of Land Resources**: Stressed the importance of integrated land-use planning to achieve sustainable development.
10. **Combating Desertification and Drought:** Called for international cooperation to combat desertification and mitigate the impacts of drought.
11. **Sustainable Mountain Development:** Emphasized the need for sustainable development in mountainous regions, addressing environmental and social challenges.
12. **Sustainable Management of Fragile Ecosystems**: Addressed the conservation and sustainable use of fragile ecosystems, including mountains, drylands, and small islands.

13. **Promoting Sustainable Agriculture and Rural Development:** Advocated for sustainable agricultural practices, rural development, and poverty alleviation in rural areas.
14. **Combating Deforestation**: Focused on sustainable forest management conservation of biodiversity, and addressing the causes of deforestation.
15. **Conservation of Biological Diversity:** Stressed the importance of conserving and sustainable use of biological diversity, recognizing the value of ecosystems.
16. **Environmentally Sound Management of Biotechnology**: Addressed the responsible use and regulation of biotechnology to ensure environmental safety.
17. **Protection of the Oceans and Coastal Areas**: Highlighted measures to prevent pollution of the marine environment and promote sustainable fisheries.
18. **Management of Chemicals**: Called for the sound management of chemicals, addressing hazardous waste, and promoting safer alternatives.
19. **Protection of Indigenous Peoples:** Recognized the rights of indigenous peoples and their role in sustainable development.
20. **Role of Women in Sustainable Development:** Emphasized the empowerment of women and their participation in decision-making processes related to sustainable development

CHECK YOUR PROGRESS

Q. In Agenda 21, which chapter addresses the need for the sound management of chemicals, including hazardous waste?

a. Chapter 14: Promoting Sustainable Agriculture and Rural Development

b. Chapter 17: Protection of the Oceans, Seas, and Coastal Areas

c. Chapter 19: Environmentally Sound Management of Toxic Chemicals

d. Chapter 21: Media and Public Awareness

Q. Which Agenda 21 chapter is dedicated to the role of women in sustainable development?

a. Chapter 2: International Cooperation to Accelerate Sustainable Development in Developing Countries

b. Chapter 8: Integrating Environment and Development in Decision-Making

c. Chapter 24: Global Action for Women towards Sustainable and Equitable Development

d. Chapter 20: Youth in Sustainable Development

Q. Which Agenda 21 item emphasizes the role of youth in sustainable development?

a. Chapter 12: Managing Fragile Ecosystems

b. Chapter 16: Environmentally Sound Management of Biotechnology

c. Chapter 20: Youth in Sustainable Development

d. Chapter 21: Media and Public Awareness

Q. In Agenda 21, which chapter focuses on promoting sustainable agriculture and rural development?

a. Chapter 2: International Cooperation to Accelerate Sustainable Development in Developing Countries

b. Chapter 6: Protecting and Promoting Human Health

c. Chapter 14: Promoting Sustainable Agriculture and Rural Development

d. Chapter 19: Environmentally Sound Management of Toxic Chemicals

Q. Which Agenda 21 chapter deals with the protection and sustainable management of mountainous regions?

a. Chapter 10: Integrated Approach to the Planning and Management of Land Resources

b. Chapter 15: Conservation of Biological Diversity

c. Chapter 16: Environmentally Sound Management of Biotechnology

d. Chapter 13: Sustainable Mountain Development

Q: Discuss the significance of Agenda 21 in the context of the Rio de Janeiro Conference (UNCED) in 1992. How does Agenda 21 contribute to the framework for sustainable development, and what are its key thematic areas?

Q: Explain the significance of the chapters in Agenda 21 that address the protection of oceans, seas, and coastal areas. How does Agenda 21 contribute to the sustainable management of marine environments?

Q: Elaborate on the role of Agenda 21 in promoting sustainable agriculture and rural development. How does this agenda contribute to addressing challenges in agriculture while ensuring environmental sustainability?

8.5 LET US SUM UP

- The 1992 Earth Summit (UNCED) addressed global environment and development issues.
- It produced key agreements: Rio Declaration, Agenda 21, and CBD.
- Introduced the idea of sustainable development for balanced global progress.
- Adopted the principle of Common But Differentiated Responsibilities (CBDR).
- Agenda 21 tackled poverty, climate, biodiversity, and sustainable living.
- Emphasized roles of women, indigenous peoples, and local communities.
- Though criticized, it laid groundwork for future global agreements.
- Its legacy shaped modern environmental policies and sustainability goals.

8.6 FURTHER READING

1. What is the significance of the "Our Common Future" report in the context of global environmental discussions?
2. Identify three key principles or recommendations outlined in the Rio Declaration on Environment and Development.
3. Briefly explain the concept of sustainable development as presented in the "Our Common Future" report.
4. Discuss the role of the Agenda 21 document in addressing environmental and developmental challenges globally.
5. What major environmental treaties or conventions emerged from the Rio de Janeiro Conference in 1992?
6. Analyze the context that led to the convening of the Rio de Janeiro Conference in 1992. What were the major environmental and developmental concerns addressed during the conference?
7. Discuss the key themes and recommendations of the "Our Common Future" report. How have these recommendations influenced global environmental policies and legislation since 1992?
8. Evaluate the effectiveness of the Rio Declaration on Environment and Development in promoting international cooperation on environment al issues. Provide examples of both successes and challenges.
9. Examine the contributions of the Rio de Janeiro Conference to the evolution of the concept of sustainable development. How has this concept been integrated into national and international policies?
10. Discuss the role of civil society and non-governmental organizations (NGOs) in the Rio de Janeiro Conference. How have these entities contributed to the implementation of the conference outcomes at the local and global levels?

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યુનિવર્સિટી ગીત

સ્વાધ્યાયઃ પરમં તપઃ
સ્વાધ્યાયઃ પરમં તપઃ
સ્વાધ્યાયઃ પરમં તપઃ

શિક્ષણ, સંસ્કૃતિ, સદ્‌ભાવ, દિવ્યબોધનું ધામ
ડૉ. બાબાસાહેબ આંબેડકર ઓપન યુનિવર્સિટી નામ;
સૌને સૌની પાંખ મળે, ને સૌને સૌનું આભ,
દશે દિશામાં સ્મિત વહે હો દશે દિશે શુભ-લાભ.

અભણ રહી અજ્ઞાનના શાને, અંધકારને પીવો ?
કહે બુદ્ધ આંબેડકર કહે, તું થા તારો દીવો;
શારદીય અજવાળા પહોંચ્યાં ગુર્જર ગામે ગામ
ધ્રુવ તારકની જેમ ઝળહળે એકલવ્યની શાન.

સરસ્વતીના મયૂર તમારે ફળિયે આવી ગહેકે
અંધકારને હડસેલીને ઉજાસના ફૂલ મહેંકે;
બંધન નહીં કો સ્થાન સમયના જવું ન ઘરથી દૂર
ઘર આવી મા હરે શારદા દૈન્ય તિમિરના પૂર.

સંસ્કારોની સુગંધ મહેંકે, મન મંદિરને ધામે
સુખની ટપાલ પહોંચે સૌને પોતાને સરનામે;
સમાજ કેરે દરિયે હાંકી શિક્ષણ કેરું વહાણ,
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