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HISTORY OF ENVIRONMENT

B.H.I.E.-143

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QUESTION PAPER

June – 2024

(Solved)

HISTORY OF ENVIRONMENT

B.H.I.E.-143

Time: 3 Hours]

[Maximum Marks: 100

Note: Attempt any **five** questions. Attempt atleast two questions from each section. All questions carry equal marks.

SECTION-I

Q. 1. Discuss the process of urbanization. How did it affect the ecology of the early societies of the Indian subcontinent?

Ans. Ref.: See Chapter-3, Page No. 32, Q. No. 3.

Q. 2. Discuss the indigenous conservation practices during the 18th and 19th centuries of the Indian subcontinent.

Ans. Ref.: See Chapter-5, Page No. 56, Q. No. 2.

Q. 3. How Indian wildlife was adversely affected during early modern period? Elaborate.

Ans. Ref.: See Chapter-5, Page No. 53, 'Wildlife: Towards Great Annihilation' and Page No. 56, 'Factors Responsible for the Destruction of Wildlife.'

Q. 4. Write short notes on any two of the following:

(i) Palaeolithic culture.

Ans. Ref.: See Chapter-2, Page No. 18, Q. No. 3.

(ii) Solar energy and fossil fuel.

Ans. Ref.: See Chapter-1, Page No. 6, Q. No. 3.

(iii) Food plants introduced from Africa to the Indian subcontinent.

Ans. Ref.: See Chapter-3, Page No. 28, 'Botanical Exchanges'.

(iv) Natural calamities in the medieval age.

Ans. Ref.: See Chapter-4, Page No. 42, Q. No. 1.

SECTION-II

Q. 5. Discuss emergence of Botany as an imperial science during the colonial period.

Ans. Ref.: See Chapter-8, Page No. 89, 'Emergence of Botany as An Imperial Science'.

Q. 6. Write a note on the social movements for the preservation of ecology and environment.

Ans. Ref.: See Chapter-10, Page No. 115, 'Rise of Citizen Voices: Social Movements and Participatory Development'.

Q. 7. Discuss in brief ideological aspects of Eco-feminism.

Ans. Ref.: See Chapter-11, Page No. 128, Q. No. 1.

Q. 8. Write short notes on any two of the following:

(a) Alma-Ata Declaration.

Ans. Ref.: See Chapter-9, Page No. 109, Q. No. 1.

(b) Green Peace Movement.

Ans. Ref.: See Chapter-12, Page No. 139, 'Green Peace Movement'.

(c) Globalization and Climate change.

Ans. Ref.: See Chapter-10, Page No. 116, 'Globalization, Climate Change and Re-Envisioning Development'.

(d) Relations of environment with development.

Ans. Urbanization as a characteristic pattern of capitalist development emerged as a major environmental concern with serious health impacts for residents due to urban pollution. Unsustainable planning and infrastructure development, massive and increasing private transport is creating health emergencies. Air pollution is causing devastating impact on people's health including respiratory diseases especially among children. Burning of fossil fuel, forest fires and open post-harvest burning of crop stubble apart from industrial pollution further deteriorating the conditions in cities like Delhi. Though several efforts have been made to deal with the situation including shifting of hazardous industries from the city, converting transport fuel from diesel to CNG, expanding metro train infrastructure, restricting use of diesel generators, banning the burning of trash, dry leaves and post-harvest stubble etc., but it requires more revolutionary systemic transformations. With environmental fallouts increasing production costs, sustainability concerns have also entered capitalist lexicon with Green Economy and Green Finance becoming popular. Green Economy is defined as environmentally responsible economic growth that supports development as well as incorporates both sustainability and justice concerns. Most of the scholars have criticized the idea of development as material and financial growth driven by consumption, commodification and capitalism. Now, social and ecological well-being is the call of societies that challenges excess consumption and corporate profits for redistribution rather than material growth and for emphasis on care, solidarity, autonomy and environmental justice. ■ ■

QUESTION PAPER

December – 2023

(Solved)

HISTORY OF ENVIRONMENT

B.H.I.E.-143

Time: 3 Hours]

[Maximum Marks: 100

Note: Attempt any **five** questions. Attempt atleast two questions from each section. All questions carry equal marks.

SECTION-I

Q. 1. How did River Valley civilizations manage their water resources?

Ans. Ref.: See Chapter-3, Page No. 25, 'Water Management'.

Q. 2. Examine the importance of conservation for sustainability. Discuss the conservation practices in the colonial period.

Ans. Ref.: See Chapter-7, Page No. 77, 'Introduction' and Page No. 79, 'Conservation in Colonial and Post Colonial Context'.

Q. 3. Explain the importance of forest and water as given in Indian philosophy.

Ans. Ref.: See Chapter-6, Page No. 66, 'Forest and Indian Philosophy' and 'Water and Indian Philosophy'.

Q. 4. Write short notes on any two of the following:

(i) The Holocene.

Ans. Ref.: See Chapter-1, Page No. 2, 'Holocene'.

(ii) Nomadic Communities.

Ans. Ref.: See Chapter-2, Page No. 15, 'Nomadic Communities'.

(iii) Exchange of exotic animals in the medieval

Ans. Ref.: See Chapter-4, Page No. 40, 'Exchange of Exotic Animals'.

(iv) Famines in the early modern period.

Ans. Ref.: See Chapter-5, Page No. 54, 'Famines'.

Section-II

Q. 5. Write in brief about policies regarding Indian health system.

Ans. Ref.: See Chapter-9, Page No. 100, 'Health'.

Q. 6. Write a note on Indian Eco-feminism.

Ans. Ref.: See Chapter-11, Page No. 127, 'Indian Eco-feminism'.

Q. 7. Analyse the role of NGOs in preserving environment.

Ans. Ref.: See Chapter-12, Page No. 146, Q. No. 4.

Q. 8. Write short notes on any two of the following:

(a) Richard Grove's writings on Environmental Studies.

Ans. Ref.: See Chapter-8, Page No. 94, Q. No. 2.

(b) Development theories developed in Latin America.

Ans. Ref.: See Chapter-10, Page No. 115, 'Development Theories'.

(c) Silent Valley Movement.

Ans. The Silent Valley movement was a well-known social and environmental campaign that began in the 1970s to oppose a proposed hydroelectric project in Kerala, India's Silent Valley region. The silent valley project was officially announced, and this sparked the silent valley movement. The dam over the top stream, according to British technicians, can help generate hydroelectricity. In 1973, the planning commission granted its blessing. The primary objective of the project was to generate 120 megawatts of electrical power and 240 megawatts of electrical power from water. The silent valley project, also known as the silent valley project, was officially announced, and this sparked the silent valley movement. The dam over the top stream, according to British technicians, can help generate hydroelectricity. In 1973, the planning commission granted its blessing. The primary objective of the project was to generate 120 megawatts of electrical power and 240 megawatts of electrical power from water. The Silent Valley Movement was instrumental in protecting this area of dense tropical forest, which was home to a wide variety of flora and wildlife. The campaign was successful in stopping the building of a hydroelectric dam that would have caused the flooding of significant portions of the forest, irreparable harm to the ecosystem, and eviction of the local tribal communities. The Silent Valley Movement brought focus to the ecological significance of the Silent Valley and the dangers presented by the proposed dam. It assisted in increasing general understanding of environmental issues and the need to safeguard natural habitats.

(d) Green Peace Movement.

Ans. Ref.: See Chapter-12, Page No. 139, 'Green Peace Movement'. ■ ■

Sample Preview of The Chapter

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HISTORY OF ENVIRONMENT

Studying Environmental Concerns in History – A Perspective



INTRODUCTION

We find some of the evidence related to environmental thought in earlier historical text such as in the writings of Plato and Kautilya, who refer to forests and the felling of trees for timber. But still, Environmental History is assumed to be primarily a product of the environmental movements started in the 1960's and 1970's. Over exploitation of natural resources, deforestation, pollution of soil, air and water, pesticides, extinction of fauna, loss of biodiversity and climate changes were some of the major concerns of these movements. According to Roderick Nash, "Environmental history refer to the past contact of man with his total habitat, going beyond the human dimension to embrace all life and, ultimately,

The salient features and concerns of environmental history will be explained in this unit. Also some debates regarding the history of the environment is included in this unit.

CHAPTER AT A GLANCE

WHAT IS ENVIRONMENTAL HISTORY?

According to J Donald Hughes, "From earliest times human societies have lived in interaction with, and in dependence on, the natural world that surrounds them and, indeed, includes them. They had a dawning awareness of their situation, and expressed it in various ways. All this is a valid and rewarding subject for historical study". J.R. McNeill has classified environmental history into three main divisions. *First* is the study of material environmental history that deals with the study of the impact of human activities on the physical environment and the impact of nature on human beings as well. Human history is regarded as significant while considering the history of the environment, the

earth and life on the earth. *Second* is the study of cultural and intellectual history that emphasizes representations and images of nature in art, literature, religion, and oral traditions. It also helps in understanding the nature of societies and how these have changed by studying related art, culture etc. The third is the political and policy-related environmental history that deals with the history of human efforts that were applied in order to regulate the relationship between society and nature, and between social groups regarding the environment.

Because of the different climate, various habitats and different ecological systems, the environmental history came up with great diversity as different methods were adopted for its study. The multi-disciplinary or inter-disciplinary approaches in environmental history occur as the practice of environmental history requires a large amount of information about the non-human world as well. The global perspective is a significant aspect of environmental history.

DEBATES IN ENVIRONMENTAL HISTORY

(i) **Environmental Ethics: Anthropocentric versus Eco-centric:** Anthropocentrism, in its original connotation in environmental ethics, is the belief that value is human-centred and that all other beings are means to human ends. It refers to the view in which nonhuman nature is valued primarily for its satisfaction of human preferences and/or contribution to broader human values and interests.

A philosophy or policy is ecocentric if it places value and importance on the entire environment and all life in it, not just the parts that are useful to humans. More broadly, ecocentric means "focused on the environment." This approach accepts that humans are a part of nature, and have a responsibility towards it and efforts must be made in healing the damage caused by the ideological dominance of anthropocentrism.

(ii) Anthropogenic and Anthropocene: Scientists and historians had accepted that throughout history humans (anthropos) modified habitats (anthropogenic). But over the last fifty years, there is a quantitative and qualitative shift in the relation between humans and the global environment as the environment is negatively impacted by human actions. It means anthropogenic change is now severe and maybe irreversible.

The modern use of the term Anthropocene began in 2000 with Crutzen & Stoermer's paper in the Global Change Newsletter, which titled as "The Anthropocene." In 2002 Crutzen again wrote an article, in which he put the theory of the neologism anthropocene through explaining the magnitude of human impact on the Earth system, ranging from deforestation, energy use and air pollution, harvesting of fisheries, and climate change. The term Anthropocene is suggested from the two fact i.e. first, the Earth is now moving out of its current geological epoch, the Holocene and second, that humankind has become a global geological force in its own right.

HOLOCENE

(i) Hunter Gatherer-Foragers: The postglacial epoch is believed to started about 11,700 calendar years ago. The term Holocene, meaning 'wholly recent', was introduced by Gervais in 1869, and accepted by the International Geological Congress in Portugal in 1885.

According to the geological record the earth was in a molten state 4.6 billion years ago. During the Pleistocene, 1.8million–11500 years ago the earth became cold due to glacial climate. Some 50,000 years ago at least 150 genera (families) of megafauna, (animals with a weight of more than 44 kilograms) developed on earth. While major extinction of megafauna/large mammals took place during late Pleistocene in America, Australia and Europe. And at most 43 genera remained around 10,000 years ago. Only after the end of the last glaciation i.e., around 12000 years ago, the Holocene epoch emerged after the end of the Pleistocene. According to Roberts, the onset of the Holocene witnessed the start of environmental processes which have continued up to the present day; processes such as soil formation, plant succession, lake ontogeny and faunal migration. But the environmental changes carried by natural agencies have reduced and human impact on the environment has increased progressively through time as Homo sapiens transformed from hunter-gatherer to city-dweller. As the human species emerged about 150,000 years ago, roughly 97% of human history took place

before the first civilization. Until the early Holocene, most of human evolutionary history has been of hunters-gatherers. These communities too manipulated their environments.

Use of fire was a great innovation of that period that had influenced the biological productivity of some favourable plants by enhancing their growth rate. The use of fire was also associated with culture in many forms, especially in legend and in myth. It was the skill that had placed humans above other mammals and megafauna. Their ability to manipulate fire helps them to transform the natural environment such as clearing the forest for human settlement and beginning agriculture which marked the emergence of Homo sapiens may be before the development of language. Thus, the study of environmental history provides an understanding of hunting gathering and the advent of agriculture. Hunter gatherers tamed both land and species though the shift to agriculture was a long process.

(ii) Agrarian Communities: McNeil was curious why humans started agriculture as farming includes more work than foraging and hunting and often results in worse nutrition and worse health because of the lack of protein in diet. Then, McNeill himself adds that humans undertook at least seven transitions to farming on four continents in the 7,000 years following the end of the ice age. According to him, interglacial conditions i.e., warmer climate could be prerequisite for transitions to agriculture and the growing knowledge of plants species and animal species could be transferred to next generations through language. Farming brought about change in the environment. The social dimension associated with agriculture enhanced cultural richness. The tools of mobile hunters and foragers were used for the domestication of animals. In this manner, humans influenced the environment from the microbial level to global climate. Beyond creating new species, early farmers created new landscapes like in rice regions of East, South, and Southeast Asia, they build paddies, dikes, and berms in order to control the flow of water while in hilly country they learned to make terraces into slopes. The villages were created along with the pasture for the livestock. The innovated irrigation devices used by farmers also changed landscapes.

Human health was also affected by farming as they consumed less meat and got less protein than their ancestors. The evidence of surviving skeletons informed us about the smaller body posture of farming people than their pre-farming pre-decessors. Because

STUDYING ENVIRONMENTAL CONCERNS IN HISTORY – A PERSPECTIVE / 3

of living in the midst of their own garbage and waste, the farmers suffered from gastrointestinal diseases carried by worms and other parasites, referred to as “diseases of sedentism.” They also suffered from “diseases of domestication” because of the zoonotic diseases that derive from domestic animals like dogs, cattle, sheep, and goats. The process of storing grains attracts rats, mice and other disease vectors, so agrarian societies also suffer from “diseases of storage”. Besides these diseases, agrarian communities grew at a faster rate than those of hunters-gatherer communities. The increase in population and discovery of new technological innovations promoted stratification, emergence of state systems and exchange.

The weather pattern in most of the Indian subcontinent represents the three to four months of heavy summer monsoon rains alternating annually with a long dry season. The various kingdoms fought with each other in order to establish control over river basins of Gangetic plains. But the increasing warfares led to the destruction of the environment as the huge royal armies led by elephant corps devoured food and fodder resources wherever they went. The horses also required massive amounts of fodder. Thus, agrarian communities were often on the move because of such disruptions.

(iii) Biological Exchange: Biological exchange can refer to the long-distance transfers of crops, domesticated animals, and disease-causing microbes, or pathogens. The climatological and natural factors like changes in the sea level were responsible for the migration. For example, by understanding the annual rhythms of the monsoon winds, the sailors in the Indian ocean figured out the best suitable route for trade and biological exchange mainly between Africa and Asia. Pearl millet, Finger millet and sorghum came to South Asia from Africa. Finger millet became the staple grain in Himalayan foothill communities and in India's far south as it was drought-resistant dryland crops, which proved a more reliable harvest under the conditions of uncertain water supply. Not only crops, weeds, diseases, and animals too were migrated through the Indian Ocean.

Because of the landmark discovery by Vasco da Gama and Columbus, the global world witnessed the major transformation from the fifteenth century. During the period, the Earth was emerging without biological borders, as plants, animals, and diseases were migrated in accordance with the ecological conditions. The famous work, Columbian exchange by Alfred Crosby in 1972 presents the transformation of the Americas in

great detail. With the introduction of new plants, the devastating diseases like smallpox, measles, mumps, whooping cough, and influenza also got exchanged. The Columbian exchange also brought vector-borne African diseases like yellow fever and malaria, which became the major cause for the death of a large number of local populations between 1500 and 1650.

Biological exchange played an important role in commoditisation of nature as the Europeans established their empires in these regions to earn economic gain.

THE ENERGY AUDIT

(i) Solar Energy Regimes to Fossil Fuels: Men, for their energy resources, depended upon plants and animals, wind and water until the Industrial Revolution. According to the calculations, 314 square kilometers (km²) used as gatherer-hunters' territory would support three people in the Arctic, eleven in semi-desert, fifty-four in grassland and 136 in sub-tropical savanna. These numbers exploded with the coming of agriculture, often by a factor of 100. By 1800, advanced old biological economies such as China and England, deforested their lands and began to establish colonies for further resources.

(ii) Fossil Fuels and the Great Acceleration: With the growing population, the energy consumption increased and the problem was resolved by innovation. With the invention of the steam engine, coal and other fossil fuels began to be used by humans as energy resources. With the Industrial Revolution in production and further increasing population, the use of steam and coal for railways was followed by the introduction of electricity. Also with the arrival of automobile industries and air travel, the fossil fuels were harnessed with great acceleration. Thus, it was our species who has probably used more energy since 1920 than in all of our prior human history and our hunger for energy causes environmental problems at every step: During extraction, refinement, transportation, and burning. All this created environmental problems like climate change, global warming etc. According to Swedish physicist Svante Arrhenius coal was responsible for atmospheric “greenhouse effect”. With the excessive use of fossil fuel, the level of heat trapping carbon dioxide in the atmosphere rose and global temperatures began to rise and the problem got worsened in the last two decades.

DEVELOPMENT AND SUSTAINABILITY

It is a well known fact that most of the innovations started in the western developed nations and the developing countries are fascinated by this model of

development. But many scholars regarded this as the development of capitalism. In the words of an environmental historian Jason Moore, the word Anthropocene is better replaced with the word Capitalocene. Now the question arises that if the increase in energy consumption represents development then is it possible to produce and consume in this manner for the entire population of the world? From the mid twentieth century, scholars are now advocating conservation of natural resources and sustainable development. In this regard, R.E. Marks says, "Advocates of global free trade, developmentalism, consumerism, and (until recently) productionism assume that the global economic system is separate from the global ecological system. That may turn out to be a colossal mistake. The biosphere and the anthroposphere became inextricably linked during the twentieth century, with human activity increasingly driving biospheric changes in directions that can be neither known nor pre-dicted." Thus, true development cannot be achieved at the cost of the environment.

ENVIRONMENTAL JUSTICE

There is great inequality between the different nations of the world and also among the members of the nation as well. The environmental justice movement was started by the black communities in America, who sought to address the inequity of environmental protection in their communities. Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."

(i) Equity Between Developed and Developing Nations: When the Washington Institute in 1991 in context to global warming was blaming developing countries like China and India's overpopulation for a large share of Anthropogenic Global Warming, then Anil Agarwal and Sunita Narain argued against it that the vital global common like global justice, equity, and sustainability should be shared equally on a per capita basis. The developed nation US, with only 4.73 per cent of the world's population, emits 22 as much as 26 per cent of the CO₂ and 20 per cent of methane, whereas India with 16.2 per cent of the world's population total production of CO₂ and methane amounted to only six per cent and 14.4 per cent, respectively.

(ii) Environmentalism of the Poor-Race and Gender: It was often argued that poor and marginal communities are unaware of the environmental

consciousness. The scholars of developing nations like Martinez Alier and Ramachandra Guha refused it by arguing that poor and marginal groups are more dependent on nature for their livelihoods, hence they are keen to protect and manage the environment. The famous Chipko movement is important in this regard. According to Martinez Alier, "The environmentalism of the poor relates to actions in situations where the environment is a source of livelihood." The environmentalism of the poor is an "environmental justice" movement, which was initiated in the US in the 1980s against "environmental racism." The role of women cannot be neglected in environmental justice movements as women are more dependent on the environment as they are generally indulged in tasks like collecting water, gathering wood, looking for medicinal plants etc. In urban places also, women often complain against waste-dumping, or air and water pollution in context to environmental justice.

CHECK YOUR PROGRESS

Q. 1. What do you understand by the term environmental history? Comment.

Ans. Environmental history can be defined as the study of human interaction with the natural world over time, emphasizing the active role nature plays in influencing human affairs and *vice versa*. J. Donald Hughes, who is one of pioneers of environmental history writes about it, "From earliest times human societies have lived in interaction with, and in dependence on, the natural world that surrounds them and, indeed, includes them. They had a dawning awareness of their situation, and expressed it in various ways. All this is a valid and rewarding subject for historical study". Three important streams of environmental history are recognised by J.R. McMeill. These are as follows:

- the study of material environmental history,
- the study of cultural and intellectual history,
- the study of political and policy-related environmental history.

The study of material environmental history deals with the examination of the impact of various human activities on the physical environment as-well-as the influence of nature on human affairs. These two are continuously mutually interacting entities that simultaneously affect each other. It includes history of human, the Earth and life on Earth, in which human history makes the most significant contribution. It