
UNIT 1 STUDYING ENVIRONMENTAL CONCERNS IN HISTORY - A PERSPECTIVE

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1.0 OBJECTIVES

After reading this unit you will be familiarized with:

- The salient features of environmental history
- The debates on the history of environment
- The concerns of environmental history

1.1 INTRODUCTION

Though we can find antecedents of environmental thought in earlier historical writings, for example in the writings of Plato and Kautilya, who refer to forests and the felling of trees for timber, Environmental History is primarily a product of the environmental movements that began in the 1960's and 1970's. These movements were concerned with over exploitation of natural resources, deforestation, pollution of soil, air and water, pesticides, extinction of fauna, loss of biodiversity and climate change. In 1972, Roderick Nash argued that Environmental history would refer to the past contact of man with his total habitat, going beyond the human dimension to embrace all life and, ultimately, the environment itself. (Nash, Roderick, 1972 "American Environmental History: A New Teaching Frontier," *The Pacific Historical Review* 41, pp. 362-372.) Donald Worster said "that the field deals with all the interactions people have had with nature in past times," or that it is "about the role and place of nature in human life". (Worster, Donald (ed), 1988 *The Ends of the Earth: Perspectives on Modern Environmental History* New York: Cambridge University Press).

1.2 WHAT IS ENVIRONMENTAL HISTORY ?

One of the pioneers of environmental history J Donald Hughes writes, "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. Donald Hughes 2010, *Interview Environmental History*, p.1-14). J.R.McNeill identifies three main streams of environmental history. First is the study of material environmental history, this entails the examination of human impact on the physical environment as well as nature's influence upon human affairs, each of which is always in flux and always affecting the other. This form puts human history in a fuller context, that of the Earth and life on Earth, and its most significant contribution is that it recognizes that human history is part of a larger story which has other actors. It challenges 'anthropocentric' (only focussed on humans) narratives. Second is a form of cultural and intellectual history. It is concerned with what humans have thought, believed, and written regarding relationships between society and nature. It emphasizes representations and images of nature in art, literature, religion, and oral traditions, how these have changed, and what they reveal about the societies that produced them. The third main form is political and policy-related environmental history. This concerns the history of deliberate human efforts to regulate the relationship between society and nature,

and between social groups in matters concerning nature.(McNeill,J.R., 2012 Global Environmental History: The First 150,000 Years in McNeill J.R. and Erin Stewart Mauldin ed A Companion to Global Environmental History, Blackwell, pp.1-13)

The great diversity within environmental history arises because a meaningful study of the mutual relations between humankind and the rest of nature requires different methods in different locations and circumstances. This is the reason for the large reliance on multidisciplinary or interdisciplinary approaches in environmental history. Since the practice of environmental history requires a large range of information about the non-human world, so in addition to the customary published and archival texts of the standard historian, environmental historians routinely use the findings from bio-archives (such as pollen deposits which can tell us about former vegetation patterns) and geo-archives (such as soil profiles that can tell us about past land-use practices). The need to fill a great variety of ecological niches and circumstances helps explain its diversity. A range of scholars from geologists to archaeologists to geographers, historical ecologists to biologists, study and write environmental history ..

A significant aspect of environmental history (because it studies habitats) is its global perspective (study of climate) and its outreach often beyond contemporary administrative boundaries. For example, someone studying Himalayan habitats may find it useful to look at Nepal as well. However, environmental histories do recognise boundaries of nation states and studies that focus on an environmental history of India are available. We will discuss this in detail later.

1.3 DEBATES IN ENVIRONMENTAL HISTORY

(i) Environmental Ethics: Anthropocentric versus Eco-centric

The confluence of ethical, political and legal debates about the environment, the emergence of philosophies to underpin animal rights activism and the puzzles over whether an environmental ethic would be something new rather than a modification or extension of existing ethical theories was reflected in wider social and political movements.

An important outcome of environmental history was an interrogation of the implicit anthropocentrism of historical writings. What does anthropocentric refer to and why are some environmentalists critical of it ? Anthropocentrism as it is commonly understood in environmental ethics and philosophy 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. In the

anthropocentric worldview, individual plants and animals, populations, biotic communities, and ecosystems are accorded only instrumental, not intrinsic, value. (Minteer B.A.,? Anthropocentrism in Encyclopaedia of Environmental Ethics and Philosophy , pp.58-62).On the other hand, the eco-centric view accepts that humans are a part of nature, and have a responsibility to respect the web of life and heal the damage caused by the ideological dominance of anthropocentrism. It asserts that the ecosphere and all life are interdependent and that both human and nonhuman organisms are absolutely dependent on the ecosystem processes that nature provides. An anthropocentric conservation ethic alone is wholly inadequate for conserving biodiversity(<https://www.ecologicalcitizen.net/statement-of-ecocentrism.php>). This ethic applies to all of nature, including humans, and does not regard Homo sapiens as the culmination of evolution but as one species among many. (Simmons I.G., 2008 Global Environmental History 10,000 B.C. to AD 2000, Edinburgh University 2008 p.4). Ethics of the environment is an important aspect of how the natural world is regulated and Unit 6 examines this for India at greater depth.

(ii) Anthropogenic and Anthropocene

Anthropocene. The most recent time period characterized by global-scale human impacts on the Earth system, normally coinciding with the Industrial era

For environmental historians nature is not a mere backdrop for the story of man. The ‘hand of man’ or the ‘human footprint’(Penna A.N. 2015,The Human Footprint: A Global Environmental History, Wiley Blackwell) in natural landscapes is the focus of study. Scientists and historians now agree that throughout history humans or anthropos modified habitats (anthropogenic). But over the last fifty years, scientists have found that there is a quantitative and qualitative shift in the relation between humans and the global environment. This perspective is pertinent and relevant, because new technologies are rapidly changing ‘nature’ and human induced or ‘anthropogenic’ change is now severe and maybe irreversible. In the past 60 years in particular, these human impacts have unfolded at an unprecedented rate and scale.

The modern use of the term Anthropocene began in 2000 with Crutzen & Stoermer’s paper in the Global Change Newsletter, simply entitled “The “Anthropocene.” (Crutzen PJ, Stoermer EF. 2000. The Anthropocene. Glob. Chang. Newsl. 41,pp.17–18)This was followed in 2002 by Crutzen’s high-profile piece in Nature, (“Geology of Mankind”), which gained much wider

circulation and attention. (Crutzen PJ. 2002. Geology of mankind. *Nature* 415(January):pp.23) This article made the case for the neologism Anthropocene because of 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 to explain the fact that (i) the Earth is now moving out of its current geological epoch, the Holocene and (ii) that humankind has become a global geological force in its own right. (Steffen Will, Jacques Grinevald, Paul Crutzen and John McNeill, 2011, The Anthropocene: conceptual and historical perspectives, *Philosophical Transactions: Mathematical, Physical and Engineering Sciences*, Vol. 369, No. 1938), The Anthropocene: a new epoch of geological time?, pp. 842-867). The term highlights the scale of our impact on Earth. The Anthropocene, is a declaration that the impact of human activities is global and irreversible. It brings together many different discussions regarding the state of the planet, from climate change to loss of biodiversity to environmental degradation, by identifying the one thing they have in common: human influence. What then is the Holocene, which ends if we accept the term Anthropocene ?

1.4 HOLOCENE

(i) Hunter Gatherer-Foragers

The postglacial epoch, is conventionally dated as beginning about 11 700 calendar years ago. Holocene, meaning ‘wholly recent’, was introduced as a term by Gervais in 1869, and accepted by the International Geological Congress in Portugal in 1885

How do we understand this and how do we explain the Anthropocene and what is its relationship with the Holocene? The geological record tells us that 4.6 billion years ago the earth was in a molten state. Over the last one million years, the climate oscillated between Pleistocene glacials and inter-glacials. During the Pleistocene, 1.8million–11500 years ago (Simmons I.G., 2008 *Global Environmental History* 10,000 B.C. to AD 2000, Edinburgh University) the glacial climate made the Earth cold. Some 50,000years ago the Earth hosted at least 150 genera (families) of megafauna, (animals with a weight of more than 44 kilograms). The late Pleistocene witnessed major extinction of megafauna/large mammals, in America, Australia and Europe. As of 10,000years ago, at most 43 genera remained. Some historians link this event to the ascendancy of humans and this theory is gaining ground, though it is not fully accepted, as yet.

Only after the end of the last glaciation, around 12000 years ago, did the world's climates and environments take on a recognisably modern form, which also heralded the end of the Pleistocene and the advent of the Holocene. 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. The Holocene witnessed secular climatic variations of smaller magnitude and shorter duration that have continued up to the present day. Of great significance, however, is the fact that the environmental changes brought about by natural agencies have diminished in amplitude as one moves forward in time, but another set of processes has done the reverse; human impact on the environment has increased progressively through time as *Homo sapiens* transformed from hunter-gatherer to city-dweller. (Roberts Neill, 2014 third edition *The Holocene :An Environmental History*, Wiley Blackwell)

What is the transformation from hunter gatherer to agriculturist to city dweller about ? How do we understand this process for different regions of the world ? It is important to remember that since our species emerged about 150,000 years ago, then roughly 97% of human history took place before the first cities and civilization. Until the early Holocene all humans practised the hunters- gatherers way of life so that most of our evolutionary history has been as hunters-gatherers. These communities too manipulated their environments. Use of fire was an important innovation, because fire influenced biological productivity by favouring plants of early successional phases, whose growth rates are likely to be rapid. The use of fire at landscape scale seems to have been very widespread so it appears culturally in many forms, especially in legend and in myth, a strand of culture which does not die out with the diminution in the number of hunters and gatherers on the Earth. Stephen J. Pyne says that this mastery distinguished humans from other mammals. The ability to manipulate fire allowed early humans to tap the solar energy stored in wood (biomass) and to transform the natural environment; it thus gave humans a crucial advantage over other megafauna. The systematic use of fire by humans to clear the forest for human settlement signals the emergence of *Homo sapiens*, which may predate the development of language. It may also have marked the origins of agriculture. (Pyne,Stephen J., 1995 *World Fire: The Culture of Fire on Earth* (New York: Holt)

Environmental history has transformed our understanding of hunting gathering and the advent of agriculture. A significant realisation about foraging societies is that life for them was not simply nasty brutish or short, nor was it a state of living in the Garden of Eden. Hunter gatherers did not live in an untamed 'wilderness,' both land and species were tamed by them. As a matter of fact, Marshal Sahlins celebrates foragers as the original affluent society, (affluence without abundance)

and other historians also note that the shift to agriculture was a long process, fraught with many problems. (Sahlins Marshal 1982 Stone Age Economics Aldine de Gruyter New York). Chapter 2 of the course tells us about hunter gatherers and pastoral communities in the Indian context.

(ii) Agrarian Communities

It is interesting that McNeill says, "Not long ago scholars used to wonder why everyone did not take up farming. Now they wonder why anyone did so in the first place. Farming turns out to be more work than foraging and hunting, and usually results in worse nutrition and worse health. So why did people do it? No one knows." (McNeill 2012, p. 7) McNeill adds, after more than 100,000 years without bothering to farm, in the 7,000 years following the end of the ice age humans undertook at least seven transitions to farming on four continents. Why and how did this happen? He attributes this to the growing knowledge of plants species and animal species, which could be transferred inter-generationally through language. He says intelligent, language-bearing humans enjoying interglacial conditions, (warmer climate) then, seem a likely prerequisite for transitions to agriculture. With the transitions to farming beginning about 11,000 years ago, people increasingly changed the environment around them. Few things in human history have mattered as much as domestication. Raising one's food in contrast to collecting or hunting it had major implications for social life. It required people to submit to routines of labour, to have a calendar but it also opened up the societal dimension, adding to cultural richness. Mobile hunters and foragers around the world had only a few tools, but now dozens of animals and hundreds of plants proved susceptible to domestication. Human impact manifested on the smallest scales, from the microbial environment, to, perhaps, the largest, in the form of global climate. Beyond creating new species, early farmers created new landscapes. They used fire and axe to clear wood and scrublands to make way for their digging sticks and ploughs. In rice regions of East, South, and Southeast Asia, they learned to build paddies, dikes, and berms to control the flow of water for the benefit of rice. In hilly country they learned to sculpt terraces into slopes. They built villages. They burned woodlands to create pasture for their livestock. Farmers also innovated irrigation devices and changed landscapes. This is discussed in great detail in Unit 2, entitled River Valley Civilisations which discusses human habitation around the Indus Valley, environmental problems and the shift to the east and the settlements along the Ganga River.

Farming had a powerful effect on human health. Farmers ate a narrower diet than their foraging and hunting ancestors, depending heavily on a few staples, which left them at greater risk of poor nutrition due to lack of key vitamins or minerals. They ate less meat and got less protein than their ancestors. The evidence of

surviving skeletons tells us that farming people were smaller than their pre-farming predecessors. First of all, like all sedentary people, agriculturists lived in the midst of their own garbage and waste. In all likelihood, they suffered from gastrointestinal diseases carried by worms and other parasites, referred to as “diseases of sedentism.” They also suffered from “diseases of domestication.” More than 300 zoonotic diseases derive from domesticated animals-- from dogs, cattle, sheep, and goats. Agrarian societies also suffered from “diseases of storage.” Storing grain, attracted rats, mice, and other disease vectors, and put populations at risk for bubonic plague and fevers. Clearance of forests with low water table or where water accumulated created habitat for mosquitoes. Malaria, appears to be linked with farming environments in Africa, Asia and Southern Europe. With the advent of farming, foragers were exposed to agricultural communities and zoonoses, to which they did not have any immunity, so they avoided much interaction. Unit 9 studies Debates on Health and Environment in great detail.

Looking back, the march of agriculture appears inexorable even if we chronicle failures. Yet, in spite of drought and other climatological variations, agricultural activity maybe considered a success and its adoption almost an irreversible process. Over the millennia, the practices established by sedentary communities transformed environments through clearing ,cultivating irrigating, terracing. New species were produced through domestication. In spite of disease, agrarian populations grew faster than those of hunters and gatherer. Population growth and technological innovations, led to stratification, emergence of state systems and exchange. Some of the development of agriculture took place in what has been labelled the ‘Medieval Warm Epoch’ (c.1000–1200) but the phase may not have been global.

In most of the Indian subcontinent the three to four months of heavy summer monsoon rains alternate annually with a long dry season. Gangetic kingdoms developed the capacity for extended wars for control of river basins and forested hinterlands. The increasing scale of military forces gradually became a key element in north Indian warfare. On long campaigns, huge royal armies led by elephant corps devoured food and fodder resources wherever they went. In the upper Ganges basin, from 997 CE onward, states from the northwest gradually extended control over the South Asian sub-continent.–these states had widespread environmental impacts. The Mughal imperial army was a mobile city of nearly 1 million fighters, camp followers, and suppliers, who stripped wide areas of the land as they moved. Cavalrymen swept the countryside, with their horses and the royal elephant corps which required massive amounts of fodder. Agrarian communities were often on the move because of such disruptions.(Nath Pratyay, 2019, Climate of Conquest War, Environment and Empire in North India, Oxford University Press, Delhi). Unit 4 discusses the environmental

history of medieval India in detail. This period saw the establishment of the Delhi Sultanate, the Vijayanagar Empire and the Mughal Empire.

(iii) Biological Exchange

Environmental History's delineation and cataloguing of biological exchange has also been extremely significant for our understanding of the dynamism of the anthropogenic natural world. For a large part of the history of life on earth, most species stayed within a biogeographic zone. Natural barriers and climatological factors inhibited migrations. These frontiers changed through human intervention and sometimes for natural reasons (sea level changes). An important aspect of Indian environmental history is that the regular monsoon winds of the Indian Ocean helped make this region of the world precocious in its maritime networks. Once mariners figured out the annual rhythms of the monsoon winds, the Indian Ocean provided a reliable sailing environment and became a route for trade and biological exchange mainly between Africa and Asia, a route that posed minimal obstacles to sailors. Pearl millet and sorghum came to South Asia from Africa 3000 years ago. Finger millet, reached India around 1,000 years ago, and became the staple grain in Himalayan foothill communities and in India's far south. The main effect of the transfer of African crops to South Asia was to provide India with drought-resistant dryland crops, opening new areas to settlement and providing a more reliable harvest where water supplies were uncertain. These examples suggest a very lively world of crop exchange – and probably weeds, diseases, and animals too – around the Indian Ocean (McNeill, J.R. *Biological Exchange in Global Environmental History* in McNeill Ed *Companion to Global Environmental History*, Wiley Blackwell, p.433-452)

After Vasco da Gama and Columbus, Atlantic Europeans, linked the earth through exchange of biota. The global world that emerged from the fifteenth century marked a major transformation. The Earth became one without biological borders, as plants, animals, and diseases migrated wherever ecological conditions permitted their spread, although how soon and how thoroughly they did so often depended on transport technologies and skills, and patterns of trade, production, and politics. Alfred Crosby's 1972 work known as the Columbian exchange, documents the transformation of the Americas in great detail. American Indian habitats were taken over and their vegetation changed, through the introduction of new plants. Resistance to such a takeover was sapped by devastating diseases like smallpox, measles, mumps, whooping cough, and influenza. The Columbian exchange also brought vector-borne African diseases like yellow fever and malaria. In the Americas all these were new pathogens, so no Amerindians carried any useful resistance. Thus between 1500 and 1650, demographic disasters drastically reduced local populations. This is studied in great detail in Unit 9.

Biological exchange fuelled commoditisation of nature and developed a market for these goods. Europeans now established their empires in these regions and imperialisms now established economic exchange. As Richard Grove notes, “European expansion entailed the encompassing of vast new territories under a European economic yoke, it also opened up a vast new mental domain. Expansion of this domain followed and facilitated the growth of trade, but it also fostered an exchange of experiences and ideas about the environment that became progressively complex and global in scope as trade and colonial dominion became global in reach.” He adds, “the attempt to reconcile the human ecological impact with the laws of nature manifested itself both in environmentalism and in searches for better and more 'natural' (or even revolutionary) social dispensations.” (Grove Richard, 1995, *Green Imperialism 1600-1860*, Cambridge University Press p.481). This is discussed further in Unit 8

Check Your Progress1

1. What do you understand by the term environmental history? Comment.
2. What do you understand by the term biological exchange? Discuss its impact.

1.4 THE ENERGY AUDIT

(i) Solar Energy Regimes to Fossil Fuels

This perspective may be attributed to the fact that till the nineteenth century, the world was under the biological old regime, also known as the ‘organic economy’ or ‘somatic energy regime’. As Marks notes, “The relative success of humans in concentrating and collecting solar energy for their use has led to our increasing population density and size over the past 2,000 years.” He adds, “The biological old regime thus was one that limited the range of possibilities for people and their history because virtually all human activity drew upon renewable sources of energy supplied to varying degrees throughout the year by the sun”. (Marks, R. R. 2012, *The Modern World since 1500* in McNeill Ed *Companion to Global Environmental History*, Wiley Blackwell, p.57-78) Until the Industrial Revolution, plants and animals, wind and water were the only sources of energy accessible to humans. One calculation suggests that 314 square kilometres (km²) used as gatherer-hunters’ territory would support three people in the Arctic, eleven in semi-desert, fifty-four in grass-land and 136 in subtropical savanna. These numbers exploded with the coming of agriculture, often by a factor of 100. (Simmons I.G. 2008 *Global Environmental History 10,000BCE to AD 2000*,

Edinburgh University Press p.7).The energetic underpinning was the ability of hunter-gatherers to maintain densities of 0.01–1.0 persons per square kilometre whereas, with shifting cultivation 10–80 people per square kilometre was possible and sedentary farming garnered solar power to underpin 100–1000 people. By 1800, advanced biological old regime economies in China and England, for instance, had effectively deforested their lands.

The colonial empires realised, with some anxiety, depletion of their own natural resources and they fell back upon colonies for further resources, they understood that eventually sustainability was a major concern. It is here that a discussion on increasing consumption and increasing population has to be located, along with an increasing need for energy. This matter is discussed in detail in Unit 5.

(ii)Fossil Fuels and the Great Acceleration

Growing population, increasing consumption, with a bottleneck of energy, was soon resolved, by innovation. Vaclav Smil says that prior to the Industrial revolution, prime movers were animate power, wind power, water power, biomass fuels, wood and charcoal, crop residues and dung.(Smil, Vaclav, 2017 Energy and Civilisation MIT Press, pp. 127-222). But the industrial revolution transformed that. This diagrammatic representation from Edmund Burke sums up the changes introduced by the use of steam, coal and eventually fossil fuels.(Burke III, Edmund, 2009,The Big Story Human Histories, Energy Regimes and the Environment, in ed. Burke Edmund III and K. Pomeranz Environment and World History, University of California Press, Berkeley p.33-53).

This second graphic, also from Burke, shows the increase in energy consumption and the increase in population

The changes brought about by the nineteenth century Industrial Revolution in production, the use of steam and coal for railways, was followed later by introduction of electricity, transport and the coming of the automobile and air travel. All these facilitated the mid twentieth century Great Acceleration, where rise of consumer culture and shift to fossil fuel marked an epoch in which it appears, "our species 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.(McNeill J.R. and Peter Engelke, 2015,The Great Acceleration An Environmental History of the Anthropocene Since 1945, Belknap Press p. 9).

During the past century, as a result of increasing energy consumption and increasing population, human activities have overtaken natural variability as the leading cause of climate change. Although some climatologists such as William Ruddiman would trace human impact to prehistoric deforestation and agriculture, the most notable man-made effects come from fossil fuels since the Industrial Revolution. By the 1890s, Swedish physicist Svante Arrhenius predicted that coal would create an atmospheric “greenhouse effect,” and by the 1930s, British meteorologist Guy Stewart Callendar found data to argue that global warming had already begun. Since 1957, when measurements first began, the level of heat-trapping carbon dioxide in the atmosphere rose and global temperatures have begun to rise swiftly beyond levels seen in the last millennium, a clear trend since the 1990s, which is more pronounced in the last two decades. (White, Sam, *Climate Change in Global Environmental History*, McNeill Ed Companion to *Global Environmental History*, Wiley Blackwell pp. 394-410;) Further greenhouse-gas emissions, could lead to more extreme weather events and could range from severe droughts to stronger storms, cyclones and heat waves. (Rahmstorf Stefan and Dim Coumou 2011, Increase of extreme events in a warming world PNAS November 1, 108 (44) pp.17905-17909).

resulted in a much higher per capita energy consumption. This figure from Vaclav Smil explains the rate of change.

1.5 DEVELOPMENT AND SUSTAINABILITY

As we all know, many of these changes and innovations began in the western world of developed nations. The new way of life that this initiated became the model for developing countries and many scholars refer to this as the development of capitalism. Jason Moore, an environmental historian has suggested that the word Anthropocene is better replaced with the word Capitalocene.(Moore Jason W.Ed., 2016 *Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism*, Kairos, Oakland).From both perspectives, it is important to remember that if increasing energy consumption is a hallmark of development then the question is, is it possible to produce and consume in this manner for the entire population of the world? From the mid twentieth century, scholars are concerned with this problem and have advocated conservation of nature and re- conceptualising the problem by thinking of a growth which is sustainable and reproducible. Unit 7 looks at the issue of conservation and its feasibility and applicability across the world. In this debate, developing nations are concerned that they are unable to replicate the high energy per capita consumption of the developed world. According to R.E. Marks, “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 predicted.” (Marks Robert 2012 p.73)
Unit 10 studies precisely this and explains the pressing and urgent need for development and environment to go hand in hand and march in step. Development at the cost of environment is going to lead us nowhere.

1.6 ENVIRONMENTAL JUSTICE

An important critique of the Anthropocene has come from advocates of environmental justice. Anthropocene apportions an equal share of blame (for over-exploitation) upon all humans for the state of natural resources on the globe. However, it is clear that there is great inequality between the different nations of the world and also inequality among the members of the nation as well. The energy footprint of individuals and communities is determined by wealth and access to natural resources.

The environmental justice movement was started by individuals and black communities in America. It was initiated primarily by people of colour (race), who sought to address the inequity of environmental protection in their communities. It defines, “Environmental justice 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.”
(<https://www.epa.gov/environmentaljustice>)

(i) Equity Between Developed and Developing Nations

In 1991, in the international context of global warming when the Washington Institute blamed over populated and developing countries like China and India for a large share of Anthropogenic Global Warming, Anil Agarwal and Sunita Narain argued against this. They said that, “How can we calculate each country’s share of responsibility for the accumulation of gases like CO₂ and methane in the earth’s atmosphere?” and noted that, “in a world that aspires to such lofty ideals like global justice, equity, and sustainability, this vital global common should be shared equally on a per capita basis.” (Agarwal Anil and Sunita Narain 2019 (first pub 1991) Global warming in an unequal World Environmental Colonialism in Dubash Navroz 2019 ed. India in a Warming World Oxford Scholarship online) The argument was that developed countries consumed more energy per capita than the developing countries so their anthropogenic footprint was more. They noted that the US, with only 4.73 per cent of the world’s population, emits

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. Some of these issues are discussed further in Unit 12, Environmental History: UN, NGO's and Environment.

(ii) Environmentalism of the Poor - Race and Gender

The early history of conservation and environmentalism, linked to the idea of parks and wilderness, a product of affluent societies of the North (developed nations) was explained in terms of so-called post materialist values (Inglehart Ronald 1981, Post-Materialism in an Environment of Insecurity, The American Political Science Review Vol. 75, No. 4 (Dec), pp. 880-900) and it was argued that poor and marginal communities are unable to develop such an environmental consciousness.

However, scholars of developing nations, like Martinez Alier and Ramachandra Guha refuted this idea and said that poor and marginal groups because they rely on the land and nature for their livelihoods are the worst affected by environmental degradation and precisely for this reason they are keen to protect and manage the environment. An important example was the Chipko movement. According to Martinez Alier, "The environmentalism of the poor relates to actions in situations where the environment is a source of livelihood. When livelihood is threatened, those affected will be motivated to act provided that there is a sufficient degree of democracy and they are not suffocated by fear. Environmentalism, in most parts of the world today, as in most eras in history, is more often than not the environmentalism of the poor". He adds, "The environmentalism of the poor appears mostly at local levels but also at national and international levels in complaints against ecologically unequal exchange and climate injustices, in claims concerning the "ecological debt," and in international court cases asking for compensation for environmental liabilities of foreign companies." (Alier M. 2012 The Environmentalism of the Poor: Its Origins and Spread in Companion to Global History, p.514). The environmentalism of the poor is an "environmental justice" movement, although it arose independently of the 1980s movement in the US against "environmental racism." The connections between both movements are now closer than ever, because environmental injustices are not only local, they are also global.

In the environmentalism of the poor as in environmental justice movements in general, it is important to recognize the role of women. Chipko became iconic because of the participation of women and extrapolating from the movement, Bina Agarwal argued that since women are given the task of collecting water, gathering wood, looking for medicinal plants, tending to livestock and are often

in charge of weeding and harvesting crops, they are aware of their dependence on the environment.(Agarwal B.,1992 “The Gender and Environment Debate: Lessons from India,” *Feminist Studies* 18/1, 1992, pp. 119–58). In urban locations too, often it is women who lead environmental justice conflicts with regard to complaints against waste-dumping, or air and water pollution. Not only that, women often propose solutions, such as the Kenyan Green Belt Movement founded by the Nobel Prize winner Wangari Maathai in 1977, which sought to plant trees in parts of the country affected by deforestation and soil erosion. This is discussed in great detail in Unit 11, entitled Gender and Environment.

Check Your Progress2

1. How did the path from solar energy to fossil fuels open up the exploitation of the planet?Discuss.
2. How is the movement for environmental justice trying to redress the inequities created by the human exploitation of the planet?Comment.

1.8 LET US SUM UP

After our review of some of the key concepts in environmental history, do you think it has a future ? If yes, then what is the future of environmental history? Paul Sutter pointed out in 2013, environmental history has been “one of the fastest-growing approaches to the study of the past within the larger profession.” (Paul S. Sutter, 2013“*The World with Us: The State of American Environmental History*,” *Journal of American History* 100 : 95) Yet the practice of environmental history has not documented the long term histories of many parts of the world. Even today, we are not sure about the provenance of the Little Ice Age, does it extend beyond Europe, does it apply to India. Kathleen Morrison’s major critique of the Anthropocene is that it has not been ‘provincialised’.(Morrison Kathleen D., 2018 *Provincializing the Anthropocene: Eurocentrism in the Earth System*, in *At Nature’s Edge*, edited by G. Cederlöf and M. Rangarajan, Delhi: Oxford University Press) In other words, global environmental history has extrapolated from histories of America, Europe, Australia but has reached out to many other biogeographical regions. Many more local/ micro histories need to help track and maybe even modify the meta-narrative of the Anthropocene. Martin Melosi argues that the most daunting task for environmental history is integrating environmental history into mainstream historical narratives from the local to the global, for example considering the environmental risk local communities bear for production of goods sold worldwide. In particular, he calls for more attention to the intersection of environment and technology. As we consider how to address environmental issues generally, environmental history may be one useful “angle of attack.” (Melosi Martin V. 2011*Mainstreaming Environmental History* in Coulter Kimberly and Christof Mauch ed.,*The Future of Environmental History*

Another important aspect of environmental history is the topics and subjects of environmental history offer great promise for knitting the world of human knowledge back together, after decades of fragmentation and specialization. In particular, environmental historians are bridging the lamentable split separating the natural sciences from the humanities and social sciences. (Limerick Patricia 2011 The Repair of the Earth and the Redemption of the Historical Profession in Coulter Kimberly and Christof Mauch ed., The Future of Environmental History Needs and Opportunities, Rachel Carson Centre Perspectives pp.9-12) Environmental historians also can cut across the boundaries of nation states which limit and constrain the ecological imagination. As D.T.Rodgers suggests, "Power and limits, economies and political regimes, culture and conceptions—all good history writing strains to hold these in relation, but environmental history, at its best, carries them and the tensions between them with a distinctive clarity. "(Rodgers D.T. The Distinctiveness of Environmental History in Hersey Mark D. and Ted Steinberg ed. 2019 A Field on Fire The Future of Environmental History, University of Alabama Press, Tuscaloosa, pp.263-271)

1.9 KEYWORDS

Anthropocentrism: philosophical viewpoint arguing that human beings are the central or most significant entities in the world. This is a basic belief embedded in many Western religions and philosophies. Anthropocentrism regards humans as separate from and superior to nature and holds that human life has intrinsic value while other entities (including animals, plants, mineral resources, and so on) are resources that may justifiably be exploited for the benefit of humankind.

Anthropocene: relating to or denoting the current geological age, viewed as the period during which human activity has been the dominant influence on climate and the environment.

Holocene: relating to or denoting the present epoch, which is the second epoch in the Quaternary period and followed the Pleistocene.

Wilderness: an uncultivated, uninhabited, and inhospitable region.

1.10 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress1

1. See Sections 1.2 and 1.3 for your answer.

2. See Section 1.4(iii) for your answer.

Check Your Progress2

1. See Section 1.5 for your answer.
2. See Section 1.6 for your answer.

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