

Anthropocene and Its Origin

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Abstract:

Human is the only race that has the propensity to dominate and domesticate non-humans. Due to this attitude, a new era is introduced on earth called Anthropocene. Anthropocene is responsible for the climate crisis, environmental degradation, extinction of species of animals and plants and many other unforeseen changes to ecology and eco-system of the earth. Sudden changes in environmental temperature rise in sea level, cyclones, droughts, earthquake, and covid-19 can be attributed to anthropogenic activities and hence there is urgent need to counter of ecological crises. To understand the origin of the Anthropocene, it is required to understand the changes in human culture, values and practices during Renaissance Humanism, Industrial Revolution, Colonialism, World Wars, Capitalism and Neo-liberal economy.

Keywords: *Anthropocene, Humanism, Industrial Revolution, Colonization, Capitalism, Neo-Liberal Economy, Ecology Imbalance.*

The earth is the third planet in the solar system. It has water, air and other favorable living conditions for the survival of plants, animals and humans. But conditions on the planet have not been always favorable. The planet earth on which we live has gone through various changes. It is assumed that the age of the planet earth is more than 4.54 billion years. It has gone through the Pleistocene epoch which is known as the long ice age. This age lasted from 2,580,000 years ago to 11,700 years ago. Epoch is the geological time scale to measure the period of the history of the earth. The conditions on the earth were too cool to live in. But 11,700 years ago, a little warmer period started which is called the Holocene epoch of the earth. Life on the earth started developing in the Holocene period. The conditions became favorable for living

on earth. Increasing rainfalls, fresh air, and a little warmer climate allowed flora and fauna to develop. First of all, life started developing in the coastal areas of sea and river. The development of the life of plants further led to the evolution of the life of animals and human. Natural and warm conditions of the Holocene epoch of the earth provided the plants, animals and human to grow rapidly on the planet.

Gradually, human tried to dominate the other species on the earth. They discovered the fire through the friction of the stones. They started living in groups. Human used to live in one place for some time, consumed the natural resources of that place and then shifted to another place that offered natural resources. They started killing other animals which were dangerous for them. In the medieval period, human started to cultivate land to grow vegetables and cereal. They started animal husbandry for milk, meat and other things. But the major energy sources for transportation, cultivation and production in that period were animals and men. Human used animals for cultivation and transportation. But human started increasing their powers with the use of hammers, knives, axes and other tools. They started cutting forests for shelter and used the wood for cooking food. With the use of wood, human started making carts and use the energy of cattle for transportation. They started the transportation of goods from one place to another which led to trade between them. So, human had a bartering system which was the oldest system of commerce. But with the growth of civilization and trade, human started exploiting the natural resources of the earth for personal gain. It diversely affected the climate, environment and nature on the earth. Human started polluting the earth's water, air and other resources. Major changes occurred on earth when major energy sources for production and transportation were changed from men and animals to fossil fuels and electricity. It led to the beginning of a new epoch on earth which is known as the Anthropocene. In the Anthropocene era, humans' interference and dominance over animals, plants and other non-human things has increased to the dangerous level and it has adversely affected the environment, climate and lives of other species on the earth.

The word Anthropocene is a combination of two words. The first word is 'anthropo' which refers to 'human' and the second word 'cene' which refers to 'new'. So, it means a new human era on earth. "The Anthropocene era of earth history is an unofficial time unit of geologic time which is used to describe the period in which human activity has started affecting the planet's ecosystem and climate (National Geographic)". The term 'Anthropocene' is coined by

Eugene Stormer in 1980. But the term is popularized by chemist Paul Crutzen in 2000. Dileta D Crostofaro and Daniel Cordale try to define this term in their work titled “Introduction: The Literature of the Anthropocene” and write: “Anthropocene is something with which contemporary culture is actively engaged (1-6)”. In the Anthropocene era, human-induced climate change started adversely affecting and contaminating the life-sustaining ecosystem and rhythm of life. In this era, human activities are responsible for environmental degradation, extinction of many species, increasing climate hazards, sudden increasing sea levels, air pollution, global warming, and unusual temperature rise on the planet. In general, the term ‘Anthropocene’ refers to the era when human-induced climate change started impacting the life of plants, animals and human and sustainable ecological structure. Anthropocene has exhibited transformation in climatology and biodiversity as well as a huge shift in human understanding of nature. Scientists think that the industrial revolution, colonization, global wars, neo-liberal economy, and population explosion accelerated the pace of human-induced climate change. Due to anthropogenic activities, the rate of extinction of species has suddenly accelerated. Carbon dioxide and other ozone-depleting gases increased in the atmosphere which is resulting in global warming, air pollution, the melting of glaciers, unusual rise in temperature, and a sudden increase in sea level.

Many scientists, geologists, historians, philosophers, and climate scientists are debating on the term Anthropocene. The books titled *The Adventure in Anthropocene* and *Human Age* are awarded honorable prizes. Anthropocene has become the reference point of many research papers and articles in the recent period. The magazine *The Economics* notes: “Welcome to the Anthropocene” on its front page. Discussions in the books and papers on Anthropocene are alarming us about the urgency on the climate crisis and environmental hazards. In a research article titled “The Concept of the Anthropocene”, Yadvinder Malhi makes the following observation,

The Anthropocene has become a scientific and cultural zeitgeist, a charismatic mega-category emerging from and encapsulating elements of the spirit of our age. It may be a passing cultural fad or end up as something more enduring; it is used in different ways by different users, but it is undoubtedly a core aspect of contemporary thinking about the environment. There are many versions of the

Anthropocene implied by different usages of the term, but amid this melee several common themes do usually emerge. The core concept that the term is trying to capture is that human activity is having a dominating presence on multiple aspects of the natural world and the functioning of the Earth system. (77-104)

The core concept of the Anthropocene is that the Scientific and cultural activities of human are dominating and start controlling the environmental and natural aspects of the earth. To understand the concept of Anthropocene, it is required to know the disciplines of the Geological history of the earth, Climate Science, Philosophy, Economics, Social System and the time scale of human activities and new ways of thinking of intellectuals and cultural spheres from the Renaissance, Industrial Revolution, European Colonization, Capitalism, World Wars, Neo-liberal economy and the invention of science and technology. The new inventions, new ways of living and cultural changes from the 16th century started affecting the earth and nature. But after the Second World War, the extraction of the environment and nature increased with rapid acceleration. In the book *The Adventures in the Anthropocene*, the writer Gaia Vince tries to elaborate the concept of Anthropocene and writes,

The Anthropocene – the Age of Man - is a proposed new name for the present Holocene epoch of what geologists call the quaternary period that we now live which during the last 65 years, whatever humans did, they did it faster and more effectively, and on a greater scale, while at the same time reproducing more and dying much less. (18)

Many writers and researchers try to define and elaborate the term Anthropocene. Scientists and geologists have debated the beginning of the Anthropocene. Some scientists think that the Anthropocene era has started with the industrial revolution but others think that it has begun with World War I. But one more aspect of the Anthropocene which is less debated is Renaissance humanism. Before the enlightenment period in Europe, a man thought of himself as a sinner in Medieval Christianity. But humanism is the major trait of the renaissance period in the 15th century. It was an intellectual movement in which the focus of the studies shifted from religion to human. Oxford language dictionary defines humanism as “a rational outlook or system of thought attaching prime importance to human rather than divine or supernatural matters (oxfordlearnersdictionaries.com).” Europeans started reading ancient Greek literature and

trying to find new things. With the study of Greek literature, they gained knowledge of the architecture, navigation, printing press, and logical and rational thinking of an object. They started exploring new ideas, new things, and sea routes. They found new sea routes to Asia, Africa and America. Their focus shifted to know more about human mental and physical abilities. They tried to control nature and natural elements through their insight and new knowledge. They started building rivers, canals and bridges. They started molding nature and other non-human things according to their comfort and profit.

During the Renaissance period, human started exploiting natural resources more speedily. They cut the forests for new buildings and started transporting the minerals from one place to another. With the new knowledge of Greek literature, human tried to do experiments with other things and started to live life in new ways. They started transforming nature and other things which led to an imbalance in the ecosystem. With the help of navigation, Europeans found new countries and islands which were full of minerals, species and other natural resources. They started exploiting the resources of these islands. It was the beginning of human interference in nature which was followed by the industrial revolution, capitalism and colonization and the global wars.

Scientists thought that the Anthropocene era of the earth began with the rise of the industrial revolution. Major changes occurred in the economy and mode of production in the late 18th and early 19th centuries. The major energy sources in transportation, agriculture and communication were men and animals in ancient times which were shifted to fossil fuels and machines in the modern period. With the invention of machines, the speed of production increased rapidly. The ‘agrarian economy’ changed to the ‘industrial economy’. The invention of the steam engine changed the mode of production. The industrial revolution was started in Britain and then followed by Belgium, France and other countries in Europe. With the rise of the industrial revolution, the need for raw material had been increased. So, for the requirement of raw materials, more natural resources had begun to use. A system of factories, machines, workers, and other types of equipment was established. A profound change occurred in the mode of transportation, communications and agriculture. But all these things were used to extract natural resources. With the industrial economy, the degradation of the environment and life-sustaining ecosystem had started.

With relatively few exceptions, the world's modern environmental problems began with or were greatly exacerbated by the Industrial Revolution. The global challenges of widespread water and air pollution, reductions in biodiversity, destruction of wildlife habitat, and even global warming can be traced back to this moment in human history. (*britannica.com*)

For industrial growth, deforestation had started on a large scale which diversely affected the environment and quality of life of human as well as animals. The smoke of factories and carbon dioxide were omitted in the air which created an imbalance in the atmosphere. Due to deforestation and increasing carbon dioxide in the atmosphere, People started suffering from respiratory issues.

In the mid-late 19th century, industries and factories had been developed in most countries of the world. South Asian countries like India and China started their industrial growth in the 20th century. The countries, which were colonized once and got freedom, started their economic growth in mid-20th century. Due to the rapid acceleration in production process, natural resources like coal, oil, and teak were squeezed and environmental pollution was increased to the level of unbalancing the ecosystem. A large scale of deforestation and mining of coal and fossil fuel in these countries empowered the process of polluting the earth and decreasing the quality of human life on the planet. The rapid acceleration in the use of fossil fuels and other resources resulted in global warming, increasing sea levels, and air and water pollution. The start of the industrial revolution in Europe led to industrial capitalism.

At the beginning of the 18th century, a large amount of capital was invested in industries and factories. With the new knowledge of machines and new technologies, the focus of the capitalists shifted from commerce to industries. New policies which were influenced by capitalists were introduced in the field of agriculture, forestry, mining, urbanization and trades for industrial and economic growth. The focus of the capitalists was to increase production and to gain maximum profit. To increase production, there was a need for more raw materials. So the use of fertilizers and pesticides was promoted in the field of agriculture which started polluting the soil and food cycle. With a polluted food cycle, the life quality of every species on earth decreased to its lowest point. In trying to gain maximum profit, capitalists overlooked the ecology and environment. Capitalism accelerated the process of extraction of natural resources.

For the growth of production and wealth in new industries, Europeans needed more raw materials for factories and manufacturing units. So, they started to colonize other countries and islands and started to exploit the natural wealth of these countries for economic growth. The greed for wealth led Europeans to take maximum control over energy resources which resulted in the colonization of other countries. So industrial revolution which was started in the early 18th led to colonization in 19th century and World Wars 20th century.

Colonization and imperialism in the modern period by European powers were also an aspect of the beginning of the Anthropocene era of earth. To accelerate the process of production, European started to establish colonies in the world and started exploiting the resources of the world for their benefit. The writer Jurgen Osterhammel tries to define colonization in his book *Colonialism: A Theoretical Overview* and writes,

Colonialism is a relationship between an indigenous (or forcibly imported) majority and a minority of foreign invaders. The fundamental decisions affecting the lives of the colonised people are made and implemented by the colonial rulers in pursuit of interests that are often defined in a distant metropolis. Rejecting cultural compromises with the colonised population, the colonisers are convinced of their own superiority and their ordained mandate to rule. (16)

European created a false ideology of “White Supremacy”. They declared that they were superior to all and God gave them a duty to civilize the world. God sent them to their country to make them better and they would help them to get rid of superstitions and their old rituals. But the motives behind this ideology were personal gain and the economic growth of European powers. According to historian Philip Hoffman, by the year 1800, Europeans controlled 35% natural wealth of the world. Furthermore, until World War 1, European gained control of 83% of the world.

European countries started competing with one another to make more colonies in Africa and Asia. England, France, Germany and other European powers started fighting with each other to control and dominate the energy resources of other countries and islands. The purposes of the colonization of European powers were to expand their land and exploit natural wealth for their economic and industrial growth. Britishers colonized most of the land of the world and started

transporting the natural wealth of other countries to their land. Colonizers forced their political and economic policies on colonized countries to gain maximum profit from the native lands. To gain a big profit, small profits were given to some native people who tackled the situation of protesting against the colonizers. Colonizers used new tactics to transport goods and raw materials. They used the flow of river water, the use of animals and men's power in new ways for extracting the resources of native lands. In the novel *The Glass Palace*, Amitav Ghosh depicts the colonizers' mechanism of using animals and rivers for transportation and writes,

Yet until the Europeans came none of them had ever thought of using elephants for the purposes of logging. Their elephants were used only in pagodas and palaces, for wars and ceremonies. It was the Europeans who saw that tame elephants could be made to work for human profit. It was they who invented everything we see around us in this logging camp. This entire way of life is their creation. It was they who thought of these methods of girdling trees, these ways of moving logs with elephants, this system of floating them downriver. Even such details as the structure and placement of these huts, the plan of the tai, the use of bamboo thatch and rattan—it was not the oo-sis with their hoary wisdom who thought of these things. (61)

The countries like India, Burma, and Africa which were full of natural wealth were exploited inexorably. Another tactic of Europeans was to use the people of one colony against another. As Amitav Ghosh in his novel *The Glass Palace* tells us the Britishers used Indian soldiers to take control of Burma. People of Burma called Indian Soldiers 'Klang' which meant hired killers.

But the exploitation of the environment in the colonial period led to creating an imbalance in the ecosystem and quality of life. The country which went through a long period of colonization had to suffer for a long time. Deforestation and mining on large scale in the colonial period created a worse situation of environmental degradation on the global level. It led to the sudden rise in temperature in the environment and global warming. In greed of economic growth, colonizers completely ignored the ecological and environmental issues of that time and its aftermaths in the future. A large scale of hunting in the forests of the colonized countries for raw materials for industries led to the extinction of many species in the forests. But the demand for these hunting items increased in the European markets. Italy and France started their industrial

growth in the late 18th and early 19th centuries. They also wanted to expand their land and exploit the natural resources of other countries. But Britisher was already controlling most of the countries in Asia and Africa. So, the greed for natural resources and industrial growth resulted in two world wars in the 20th century which also became the reason for natural disasters and climate crises on the earth.

At the beginning of the 20th century, World War took place between the central and the allied forces. The hidden reasons behind war were to expand the colonies and to control the maximum energy resources to take more profit. The First World War started in 1914 and ended in 1919. It was followed by the Second World War from 1939 to 1945. But the aftermaths of these wars were very dreadful for humans, the environment and animals. The use of weapons and notorious gases during the war drastically affected the atmosphere and soils on the earth such as digging of trenches caused erosion of soil and poison gases were spread throughout these trenches to kill the soldiers of the enemy which resulted in soil erosion, destruction of plants, insects and animals. Around 1, 00,000 deaths were counted during World War 1 due to these lethal gases but nobody paid attention towards the killing of the number of animals and plants. Moreover, the use of energy as fossil fuels for military aircraft, naval ships, and other vehicles for the transportation of weapons rapidly increased and resulted in an acceleration of carbon emissions. The oil which passed into the sea because of shipwrecks and leakage in ships polluted the sea. The oil in sea water became the reason for the killing of many sea creatures and plants in the sea. Still one can observe the direful effects of oil in the sea at specific places where this destruction took place. In 1945, the USA dropped an atomic bomb on Hiroshima and Nagasaki which resulted in the devastation of not only human but also plants and animals. But the loss of animals, plants and the environment were never considered seriously by organizations, environmentalists and governments. Atomic Bomb released a large scale of radioactive waves which lead to contamination of land, atmosphere and water for many years. The use of atomic weapons affected the ecological balance diversely and it created toilsome and dire conditions for humans, animals and ecology. New inventions of science and technology like atomic weapons not only harmed to survive and sustainability of human but also ruined the non-human elements of environment like the atmosphere, ecology, plants and animals.

Technology and science have capacity to shape and transform the society, culture, economy and environment. Uncontrolled and unchecked use of technology is a reason for many social and environmental problems. It has caused climate change, environmental degradation, increasing sea levels, high rise in temperature, and polluting soil and water on earth. New technology and inventions of science give a comfortable life to human but it affects the ecological system diversely. New inventions and technology like the internet, electricity and new types of equipment in the field of agriculture and transportation only accelerate the speed of exploitation and abuse of natural resources. The invention of air conditioners, 5g internet, pesticides, and luxury cars make human life comfortable but that are contributing to environmental degradation as well. D. SankarPolaiah in his research article titled “Impact of Technology on Environment” discusses the harms of technology on the environment and writes,

Environmental degradation is a growing concern as continued industrialization is being witnessed mostly in developed countries. There are three major negative impacts of technology on environment discussed in this essay. First, environmental pollution resulting from waste output is a resultant factor of technology. Contribution to global warming is the second effect of the growing technology. Lastly, depletion of natural resources and ecological imbalances experienced today result from technology. (53-55)

Carbon emissions and excessive use of fossil fuels has led the planet to an unrecoverable damage. The aftermaths of human’s common practices for entertainment and living comfortable life are creating serious ecological imbalance. In the mid-20th century, newly independent countries adopted new western technologies and started accelerating their economic growth. And undue extraction of natural resources on large scale increased due to their economic explosion.

After a long period of colonization under European powers, most of the colonized countries got freedom in Asia as well as Africa continent. Under colonization, the natural resources were exploited by colonizers to expand their industrial growth. But after independence, these countries started their economic and industrial growth by using the same process of extraction of natural resources. They started accelerating the process of their economic growth which required more natural resources, raw material, new technology and machine and use of energy sources like fossil fuels, coal, and electricity. And the economic explosion of these

countries put a huge pressure on environment and ecological system. The demand of western products like android phones, internet, air conditionals, luxury cars, branded clothes also started increasing with economic growth of these countries which led to more extermination of natural resource. New industries and factories developed in these countries which also became responsible for ecological imbalance and environmental problem. The development of industries in all over the world led to neo-liberal economy which also a reason for origin of Anthropocene.

Neo-liberal economy is the restatement of classical liberalism because neo-liberal economy has some components or features of classical liberalism. It is also the ideological branch of classical liberalism of 17th century. It is a policy that emphasizes the value of free market competition. It is associated with laissez-faire economics and it gives control of economic factors to private sector from the public sector. The main idea of neo-liberal economy is to bring efficiency, growth and prosperity. IFIs such as World Bank and International monetary fund have supported neo-liberal economy and support removing the trade barriers and open competition in the market. Through this open and free market anyone can invest freely. With the starting of neo-liberal economy in India, it makes the country third largest growing economies in the world. Neo-liberal economy boosts the globalization because the market is open for everyone.

The impact of neo-liberal economy on environment is linked very debilitating. Establishing private manufacturing units requires land, water and other resources. Neo-liberal economic policies are also a reason for climate change and environmental problems. Lowering trade barrier and less government interference in industries, market and management of natural resources like forest, water, agricultural lands, and fisheries cause ecological imbalance. The shift of environmental protection to local and non-government authorities increases the environmental degradation. So, climate change, water stress, polluted agriculture lands, air and water pollution, problem of waste disposal start affecting the life of masses, ecological balance, biodiversity, economic growth and a sudden rise in earth's temperature. The temperature of the earth has risen 0.08 degrees (Celsius) per decade since 1880 according to the report of NAOO (National Oceanic and Atmospheric Administration) temperature data. A warmer surface precipitates more rain, cloudburst, and lightning which affect all forms of life on the earth and water. A rise in temperature causes more evaporation. The increased amount of water in the

atmosphere means a change in the water cycle and heavy rainfall or cloud burst. It leads to floods, soil erosion, and loss of life. Increased evaporation also leads to drought because heavy rain falls elsewhere. So Neo-liberal policies also are responsible for environmental degradation and creating an imbalance in life-sustaining ecology.

Climate change which is caused by anthropogenic activities has become undoubtedly one of the most urgent challenges for present generation and the ones that follow. It is a serious threat to all forms of life and human refuse to admit it. Population explosion which is also an anthropogenic activity is a threat for environmental imbalance and rapid consumption of natural resources. Population has increased rapidly in last couple of decades. This sudden rise in population puts a pressure on natural wealth and ecology. Demand of basic elements like food, clothes, and houses for living has increased rapidly in turn increase the process of consuming natural resources. With the population explosion some common anthropogenic activities can be seen which affect the environment like cutting of forests to make houses, roads and urban area, increasing the consumptions of fresh water and food from lakes, rivers and land and increased demand of vehicles for transportation like cars, public transport and more use of fossil fuels. These activities are responsible for global warming, environmental pollution which reduce the air and water quality. Low air and water quality affect the life of human and well as non-human elements. So anthropogenic activities are affecting the environment and ecological system directly and indirectly which resulted in an unavoidable hazard to earth and all living being on it.

To conclude, humans are dominating the planet earth without considering the valuable and sustainable aspects of environment and anthropogenic activities are responsible for the increasing degradation in life-sustaining conditions on earth. Anthropogenic activities are decreasing the life sustainable conditions of plants, animals and human as well. So, the Anthropocene era is the result of human dominance on the earth and interference in natural environment. The writers like Amitav Ghosh, Ramachandra Guha and Madhav Gadgil are continuously alarming with their works about ecological imbalance and climate crisis. The life on earth has become difficult day by day as natural resources are getting less in quality and quantity. So, there will be a question regarding the life-sustaining possibilities of all species on the earth.

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