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Human Impact on the Environment and the Anthropocene in Amitav Ghosh's *Gun Island*

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Abstract

This article analyses the impact of human in Amitav Ghosh's *Gun Island* altering the ecology of the earth from the Anthropocene perspective. The Anthropocene asserts that nature, which has been damaged so much that it cannot regenerate, and whose balance has changed, has changed not because of meteor strikes, ice ages or globalcauses as it used to be in old times, but because of human influence. The unpredictable and inconsistent climatic effects caused by human effect such as fossil fuel consumption especially after the industrial revolution, global warming, rise in sea levels, acidification of oceans show that humans have the greatest impact on nature compared to other living things. Although the existence of man in the world is relatively short, the biggest factor affecting the environment in the 21st century is human. Therefore, due to the global impact created by man, human impact changes the life of nature, animals, plants and himself in an unknown direction. In this context, Amitav Ghosh's novel *Gun Island* features the impact of humanity to the ecology that connects the past to the present with a Bengali myth showing how the impact of humanity stretches into the ecology.

Keywords: Anthropocene, Migration, Climate Change, Global Warming

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Amitav Ghosh'un Silah Adası Romanında İnsanın Çevreye Etkisi ve Antroposen

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Öz

Bu makale, kendini yenilemeyecek kadar zarar gören ve dengesi değişen doğanın eskiden olduğu gibi meteor çarpması, buzul çağları veya küresel sebeplerden değil de insan etkisiyle değiştiğini gösteren Anthroposen bakış açısı ile Amitav Ghosh'un *Silah Adası* adlı eserindeki insan etkisiyle iklim değişikliği ve yarattığı sorunları ele almaktadır. Sanayi devriminden sonra artan başta fosil yakıt tüketimi artışı olmak üzere değişen iklim sebebiyle ortaya çıkan tahmin edilemeyen ve tutarsız iklimsel etkiler, insanın doğa üzerinde diğer canlılara nazaran en büyük etkiyi yarattığını göstermektedir. İnsanın dünyadaki varlığı kısa olmasına rağmen, 21. Yüzyılda çevreyi etkileyen en büyük faktör insandır. Dolayısıyla, insan yarattığı küresel etki sebebiyle doğanın, hayvanların, bitkilerin ve kendisinin de hayatını bilinmeyen bir yöne doğru değiştirmektedir. Bu kapsamda, Amitav Ghosh'un Silah Adası adlı romanı, Bengal dilindeki bir mit vasıtasıyla, geçmişi günümüze bağlayan ve insanın etkisinin küresel anlamda çevreyi nasıl etkilediğini gösteren kurgusal bir hikâye ortaya koymaktadır.

Anahtar Kelimeler: Antroposen, Göç, İklim Değişikliği, Küresel Isınma

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Humanity has always been a member of the ecological system since it appeared on the earthly stage. In the first steps of his appearance, he had been a typical participant of the ecosystem just like the other members of the environment. In this atmosphere, all livings survive in the ecosystem by adapting themselves to the rules designed by the system. However, when environmental factors make it difficult to survive, animals adapt themselves to the environment by hibernating or migrating to other places while plants show their adaptations by changing the colour of or shedding their leaves in the change of seasons. Similar to the animals and plants, the ancient people undeniably could only survive in the environment by adapting themselves to the rules of the habitat they were living in as it was not possible for humans to survive in the environment if they deny complying with the rules of the environment (Barrett, 2021, p. 205). Nevertheless, things have changed for humans with the invention of the first technologies (Gezgin, 2011, p. 25) and humans have promoted their role in nature as the masters of nature in this kingdom.

Since humanity became the king of the jungle, they have been altering the balance of the environment in such a tremendous way that the collateral damage of the change pushes the earth into an irreparable condition and consequently, the human influence on the environment steps into a new recognition that deterioration on the earth's ecology becomes the imprint of humanity. For the last 200 years, negative human impact on the environment reached such an enormous degree that scientists claim that this imprint needs to be taken as a new geological epoch as human effect is omnipresent in every place such as wild seas away from human reach or remote areas. In an example to the incident, the level of human impact is so immense that even the Mariana Trench, the deepest oceanic trench in the world with 10,975 meters down in the Pacific Ocean, cannot stay away from the scourge of plastic pollution and plastic and microplastics have been identified in the stomachs of several aquatic creatures according to *National Geographic* (Gibbens).

Human presence on earth, when it is compared to the age of the earth that we are living in, is short without a doubt, but we have succeeded to alter the balance that existed for millions of years in such a short time and become a threatening factor in determining the health of the Earth more than all the entities on this planet altogether can possess (Dickinson, 2000, p. 485). For this reason, some scientists suggest that the last era of the Holocene should be called the Anthropocene which indicates that humans are now the main reason for earth's systemic change while back then geological changes on earth's strata used to be caused by incidents such as "meteor strikes, the movement of continents and sustained volcanic eruptions" (Lewis & Maslin, 2015, p. 171).

In this perspective of the Anthropocene era, this study aims to explore how Amitav Ghosh creates a fictional illustration of the modern world shaped by human induced consequences in *Gun Island* and how the man-made alterations in the ecosystem affect all living beings creating a force migration for the species.

The Anthropocene Era

Looking into the etymology of the word The Anthropocene, it is an amalgamation of two distinct Greek words “Anthropos” meaning “human” and “cene” meaning “new” indicating the global range of human-caused impact on the structure and function of the Earth’s ecosystems (Gibson & Venkateswar, 2015, p.5). In modern times, for example, the consequence of human dominance on earth can be seen in the ecology such as “climate change; ocean acidification; stratospheric ozone depletion; interference with the global phosphorus and nitrogen cycles; global freshwater use; land-system change; loss of biodiversity; chemical pollution; and aerosol loading in the atmosphere” (Franchini, Viola, & Barros-Plataiu, 2017, p. 181). As for the consequences of these human induced negative attributions to the ecology, the environment is being dragged into a new epoch as humans have become the new “geophysical agents” (Reno, 2022, p. 2) changing earth’s ecological systems in such a short time. So, in this respect, the Anthropocene is a reflective word which points out the human dominance on Earth subordinating all other life forms.

The popularisation of the term Anthropocene has been made possible by the Nobel-Prize-winning chemist Paul Crutzen to indicate the present period in which the world’s ecosystems were dominated by mostly human impact in his *Geology of Mankind*. According to him, the late eighteenth century was the onset of the Anthropocene when he analysed a mass of air trapped in polar ice indicating an increase in carbon dioxide and methane levels. Interestingly, he put forward that this incident coincided with the invention of the steam engine in 1784 (Crutzen, 2016, p. 211). So, he directly proposes that the use of fossil fuels has increased the emission level of methane and carbon dioxide in the earth’s atmosphere and the 18th century has been the dawn of the human impact on the environment with the start of the industrial revolution.

However, while the first negative impact of human effect on earth’s environment can be related to the industrial revolution, some scientists such as Simon L. Lewis and Mark A. Maslin argue that the *Orbis spike*, caused by the Columbian Exchange in the American continent, also created a dramatic decrease in CO2 level in 1610 which also indicates the human impact on the ecology. With the invasion of the American continent, the old world was given different types of vegetables and animals peculiar to the American continent whereas The New World took European diseases such as measles

and smallpox, which caused a dramatic decrease in the population of the indigenous people triggering a possible forest growth and subsequently a sharp decrease in CO₂ (Lewis & Maslin, 2015, p. 174-175). So, in addition to what Crutzen proposed it can be said that humans also started to change the climate of the Earth before the Industrial Revolution. In this respect, the eradication of indigenous people of the American continent proves the correlation with the decrease in the CO₂ levels back in 1610 showing that people are the real reason for the changing of the CO₂ levels on earth which is a crucial factor changing the ecology of the earth.

As there are different views on the onset of the Anthropocene as presented above, it is also under debate whether to name the human era as a new epoch or a continuum of the Holocene (Cohen, Finney, Gibbard, & Fan, 2013). A possible explanation for this confusion is the lack of adequate necessities which are essential for the application of a Holocene / Anthropocene boundary (Gibbard & Walker, 2014 p. 29-31). Despite its unofficial recognition as an epoch and conflicts at the beginning of the Anthropocene, human-caused effects have reached a considerable degree during the last centuries without a doubt. Since the industrial revolution, Northern Europe has caused noticeable shifts to the planet's surface, and practically every environmental system on earth is now affected by human action in such a short time according to same source. Especially after the great acceleration period in 1945, human activities are increasing so overwhelmingly dominant that they have even been surpassing the capacity that the earth can handle, so human activity undoubtedly pushes the ecology into "a less biologically diverse, less forested, much warmer, and probably wetter and stormier state" (Steffen, Crutzen, & McNeill, 2007, p. 614).

Fredrik Albritton Jonsson from the University of Chicago shows that the carbon dioxide emissions stemming from fossil fuel consumption have already started a climate change increasing the usual temperature by three to five degrees in the century according to his reports and he further claims that according to these reports, "sea levels are expected to rise between one and three feet by the year 2100" (Jonsson, 2012, p. 679) if we keep on using fossil fuels in the same way. On the other hand, prominent scientists such as Eugene F. Stoermer, Paul Crutzen, Jan Zalasiewicz, Mark Williams and Will Steffen illustrate the impact on the earth by the representation of the growth of uncontrolled population, the rising emergence of concrete cities, the never-ending consumption of fossil fuels and the increase in emission of greenhouse gases (Gürbüz, 2013, p. 76). While sceptics and deniers still question the scientific findings of climate change, most scientists already believe that people have significantly been affecting the Earth's ecological system.

Despite the corresponding debates about the Anthropocene, the concept has since then taken root in popular discourse as the relationship

between humans and nature has already constructed its ways into literary forms of art as well as in other narratives. Bloomfield, for example, portrays the impact of humans as “it is not possible to imagine wandering lonely as a cloud, because [even] clouds now jostle in our imaginations with an awareness of atmospheric concentrations of carbon dioxide and other airborne pollution” (Bloomfield, 2021, p. 76) pointing out the change of human perception in understanding of nature from Wordsworth’s *I Wandered Lonely as a Cloud* to modern times (Wordsworth, 2004, p. 408). As stated above, the human impact on the ecology is so immense that it is not possible to find an entity which is not affected by human intervention in the modern world and even for poetic and literary texts it is not possible to find an entity or a system that can elude from human contamination.

Literature especially in the last half of the twentieth century has delved into the dichotomy between man and nature (Hegglund & McIntyre, 2021) to change our view of nature as the era of Anthropocene has not finished yet. A positive reconfiguration in relationship with the ecosystem may give humanity a chance to reconsider and restore its connection with the environment and our affiliation to the earth would not implicate mastery and control but encourage exchange and admiration. Because on the social level, the Anthropocene is also a sociocultural discourse that is inspiring researchers, artists, filmmakers, and authors to reconsider the connections between culture and environment, economics and ecology, science, and imagination in modern times. While science and other disciplines are equipped with substantial information to deal with the issue, they are missing the thought-provoking aspect of the literature in the field. For this reason, literature has the power to light a beacon on the sustainability of the planet and construct a bridge to show the value of the ecosystem to humankind. In this perspective, Amitav Ghosh’s fictional novel *Gun Island* features a modern and fictional story between humankind and nature as a social response to the human intervention to the course of nature featuring the relation between climate change and migration.

Human Impact in Ecosystem in Gun Island

The novel *Gun Island*, written by Amitav Ghosh, is a fiction that deals with many ecological problems, such as the exploitation of nature by humans, which closely affect the lives of all living things on earth, climate change caused by anthropocentric consequences, and the problem of migration caused by this ecological change. In old times, the factor that changed the climate was geological factors along with the micro components that formed the world, while the biggest factor causing climate change in the Anthropocene era is human (Steffen, Crutzen, & McNeill, 2007, p. 614). Therefore, after the industrial revolution, the human effect on nature is seen more frequently in this novel, with the consequences it has created and the chaining effect these results have on living things. It is shown in the novel

that the micro-disorder, which is directly created by human influence, evolves into a macro-calamity that affects the climate of the world negatively in later stages. This unpredictable and variable changes affect all living things, and in some degrees even causes the extinction of some species on earth.

The plot of the novel is mostly set in India, which has one of the most air polluted countries in the world according to State of Global Air (Health Effects Institute, 2019). Carrying the traces of the colonial period on the first pages of the book, New Delhi recalls its foggy, hot, and sweltering weather with its notorious greenhouse effect. It is tragic that the greenhouse gas effect seems so intense in a city which is so close to the world's largest mangrove forest, Sundarbans. While this tragic situation is given as fiction in the novel, unfortunately New Delhi suffers so much from the greenhouse effect in real life (Sequeira, 2008, p. 10) which shows the reflections of the real-world tragedy in the novel. The protagonist of the novel, Dinanath with its Americanized version of Deen, lives as a book dealer and happens to find himself setting out on an extraordinary journey from forest fire surrounded Los Angeles, air polluted India to flooded Venice portraying the same unstable climate patterns all around the world pointing out how the ecological system is interconnected all around the globe. The environment presented in the novel is directly affected by the human touch and environmental balance is disturbed, so the chain reaction that started with the human influence affects every living thing around the biosphere differently, while the human being, a member of nature, also sees the negative effects of this change in different and profound ways.

The Sundarbans, which is the largest mangrove forest in the world and home to thousands of species, is exploited by the people as a source. As it is given in the book, every merchant who sets out for overseas trade has to pass through the Sundarbans Forest since old times. For this reason, the passage of traders through the forest brings the human influence on the depths of the forest. In this context, the conflict between man and wild nature goes back even further than the adventure of the main character, Deen, with the shrine that he is trying to reach as his quest. On the other hand, a shrine built by humans in such a large mangrove forest is an indication of human progress in nature and how far and inaccessible places human influence in nature can reach. The shrine dedicated to the Manasa Devi, built deep in the forest in the mangrove forest, brings to mind the example of the plastic bag found in the Mariana Trench as in both cases, the tokens of human impact are seen in places that they do not belong. Subsequently, it is seen that people disturb nature and change its balance adversely, nature strikes back in a tone causing unfavourable and unpredictable climate changes for all living on earth.

When the negative impact caused by humans to nature is considered as an individual and small amount of damage, the same amount of damage

produced by millions of people becomes the most powerful factor changing the balance of the earth in the Anthropocene era triggering a butterfly effect for the whole living beings on earth. As in the examples in the novel, the change in the nitrogen level in the soil as a result of the use of artificial fertilizers prevents agricultural activities for the people in the region along with the rise in saline water levels in Sundarbans. A refinery established in the area pollutes the rivers, increases the arsenic content in the water and reduces the fish population and diversity in the stream. Increasing deforestation by its human inhabitants and drought in the region with the drying up of streams for the corresponding reason, rivers stop feeding all those people; causing starvation and impoverishment of the people of the region, and thus they have to migrate to other places in search of new opportunities. Due to this forced migration, not only animals and plants but also people have been affected by climate change. While animals are affected by the climate change such as beaching dolphins in Sundarbans, hungry birds starting forest fires and venomous snakes and spiders appearing outside of their natural habitats, the impact of climate change on humans is seen as economic, sociological, and psychological consequences in the novel as parallel with real-life environmental concerns. The change beginning with the destruction of the forest, land pollution, disturbance of water sources, a rise in the saline water level to the inland farmlands and subsequently killing of fish population in rivers creates a forced migration for animals and people who make their living from the mangrove, agriculture and fishing have to switch to other business lines and leave their lands. Consequently, people have to migrate to some other countries such as it is illustrated in the novel with the growing number of Bengali construction workers in Venice. As an alternate option to the unemployment problem created by the destruction of ecology, people venture into thievery or even in prostitution portraying the economic, sociological, and psychological consequences created by the change in the environment.

On the other hand, animals are trying to adapt themselves to the unstable and unpredictable climate patterns by migrating to other places just like people do or committing suicide such as the beaching of Irrawaddy dolphins in the novel. As stated above, it is seen that the first impact of the global disturbance of the environment is already created by the human impact in the novel for a long time. Related to the death of the fish population and pollution of underground water, a refinery built in the deep of the forest is said to be polluting the clean water supplies in the region by creating arsenic poisoning. Moreover, the usage of artificial fertilizers for agriculture is seen as another factor that has a tremendous effect on the contamination of rivers and soil which has a direct impact on climate change. Related to the excessive use of fertilizers, the eutrophication of river mouths and coastal waters is widely caused by nitrogen composites, primarily from sewage and agriculture (Seitzinger & Phillips, 2017, p. 350)

which in the novel caused by local farming compounds and a refinery built in the area. The uncontrolled waste and usage of fertilizers contaminate freshwater resources as well as rivers causing aqua life in the area deprive of oxygen. It is seen in Gun Island that following the decrease in oxygen levels, the micro food chain the rivers possess is disturbed, consequently sea creatures feeding on the chain dies out or have to migrate some other habitats creating less biodiversity for the aquatic river life in the area.

Another important effect of climate change on inland agricultural land is the soil salinity, which has grown during a 25-year period from 1 to 33% due to rising sea levels for the year 2018 (Ullah, Bano, & Khan, 2021, p. 2). Along with the damage to farmlands affecting agriculture production and therefore source of income for the human population, rise in saline water levels also affects freshwater ecosystem which has the vital importance for people as they depend on “the integrity of populations and communities of freshwater organisms” (Cañedo-Argüelles, Kefford, & Schäfer, 2019, p. 1). The disturbance caused by the rise in saline level in fresh water affects aquatic life and Ghosh shows the beaching of Irrawaddy dolphins as they are highly sensitive animals to change in salinity (Verutes et al., 2021, p. 1). As given in the novel, these dolphins dwell in sensitive areas and a rise in the salinity ends up a force immigration for the population. In the basins where they inhabit, freshwater dolphins serve as markers of the vitality of the rivers as river dolphin population is a reliable indicator of the health of the river's entire freshwater ecosystem according to World Wild Life (‘Freshwater Dolphin Species and Facts’, n.d.). In this respect, a declining in population is regarded as a warning sign for the ecosystem. This situation appears in the novel in such a way that freshwater dolphins, having no place to escape, commit suicide by beaching themselves in masses. While increase in salinity and arsenic levels due to anthropocentric causes, the human impact damages the aquatic food chain and reduces the oxygen level in fresh waters resulting in the migration or even the death of the species. So, corresponding micro causes originated from human impact in the ecology snowball into a macro disaster and the beaching of river dolphins in Sundarbans is just a fictional reflection of this anthropocentric mishap for non-human world. But looking into the bigger picture, the anthropocentric climate change causing natural changes in the balance of nature such as rising sea levels, adverse weather conditions, saline water flooding, increase in nitrogen emission and arsenic level in water sources and so forth, has been exacerbating destruction of the ecosystem not only for the nonhuman world but also for humankind.

Gun island also shows that environmental changes originated from human centred destruction of nature are not only today's problem but also the cumulative effect of human impact. For this very reason, the novel hints the reader that the protagonist of the myth, Bonduki Sadagar, escapes from the Manasa Devi and compelling reasons for him to change place was

because of the global climate change which corresponded with "the little ice age" period as incidents such as the eradication of indigenous people of American continent and reforestation after European conquest to Americas contributed to the change of the climate for that time. Meantime, Ghosh features the "Little Ice Age" to point out that human influence is not a contemporary problem, but a more of a persistent and ongoing problem for the ecology. Therefore, the human induced effects that have been affecting the ecology of the earth in the 21st century is not the outcome of immediate consequences, but rather a cumulative burden that has been everlasting for centuries. For this reason, it is emphasized that man is the only geological factor that changes the climate of the world in the 21st century.

In this context, the changing effect of human on ecology is not something effective only in the 20th century, but, as Crutzen said, has been an ongoing process since in the latter part of the eighteenth century (Crutzen, 2016, p. 211).

Conclusion

Scientists haven't reached a consensus whether to take Anthropocene as an epoch or not as they also disagree on the onset of the Anthropocene. However, the Anthropocene has already stepped into the world of narratives and Amitav Ghosh's novel is an excellent example of the genre to show the anthropocentric impact of humanity on ecology of the earth as a geological factor. In *Gun Island*, Ghosh features a famous Bengali myth between the *Bonduki Sadagar* and *Manasa Devi* in a modern reflection as a fiction of migration and environmental change to be able to denounce the human impact on ecology such as greenhouse effect, global warming, loss of biodiversity, rise in sea levels, increase in saline water levels, loss of habitat, forced migration of species, contamination of water resources and so forth due to anthropocentric causes in 21th century. While the *Manasa Devi* in the Bengal myth represents nature, the gun merchant who tries to escape from it with his wealth and power, actually represents today's human who has no place to escape from such an imminent and global threat. Therefore, man, who is on the receiving end of nature's wrath and destructive power, is a fragile entity if he destroys the ecology that protects him. In this context, humankind has to be respectful and sensitive to the environment in order to prevent a possible ecological disaster that would probably eradicate his existence. To be able to portray this scenario and anticipate a possible ecological catastrophe, Ghosh blends the elements of miracle, mythology and fiction in his novel and shows a warning sign for the people with the global catastrophes that may occur aftermath of a change in the ecological system. An ecological change that will inevitably occur as long as people perceive themselves as the master of nature and this climate strife will influence not only the animals and plants, but also the humankind.

A change in the ecological system becomes a global problem in later stages. The problem starts in early stages as a local problem, however all together a problem starts to affect another one and all together they develop into an ecological mishap that is enough to change the balance of the earth globally. In the novel, people who migrate to countries with the loss of work and living space see the effects of this global change in the countries they go. Therefore, a greater climatic change will not only affect certain parts of the world and some certain types of life but also the whole world and all the living that it harbours, and in such an immense and global ecological change there will be no escape for humans and other living things. In this perspective, the fictional scenario presented by Ghosh warn people against a possible ecological change and its economical, psychological, and social consequences. Therefore, a fictional warning in a novel can provoke a reconfiguration for humans in their relationship with ecosystem giving humanity a chance to reconsider and restore our relationship with environment, so that our relationship with the earth would not mean dominance and control but encourage an admiration for the ecology.

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