

**CAUSES AND EFFECTS OF GLOBAL
WARMING: AN ECO-CRITICAL
ANALYSIS OF MACDONALD’S
FINITUDE**

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Abstract

MacDonald talks on the effects of global warming in “Finitude”. Climate change or global warming is a serious environmental issue. This study makes use of Glotfelty's conceptual framework for ecocriticism. Given the qualitative, descriptive character of the study's data, content analysis is a viable method for analysing them. The book "Finitude" by Hamish MacDonald served as the inspiration for this piece. The column titles in the table below serve as the study's hypotheses, from which the conclusions were drawn. Peer debriefing was used by the researcher to ensure that the data were accurate. This article emphasises a number of environmental problems, including greenhouse gas emissions. The three components that raise the most alarm in terms of greenhouse impacts are blackbody radiation, greenhouse gases, and heat and wind. The subject is investigated in this novel more via the observations of the characters than through any scientific inquiry. Then, via the acts of the characters, the environmental issue in Hamish MacDonald's Finitude may be successfully articulated and shown. The author believes that Finitude effectively conveys the importance of environmental conservation as a result.

Keywords: *Black body fluctuation, Greenhouse gases, Temperature, Wind, Environmental assessment*

1. INTRODUCTION

The entire world is currently in risk due to a wide range of environmental issues. Few civilizations are immune to serious environmental difficulties, especially as globalisation continues and the Earth's natural processes amplify local problems on a global scale. An environmental issue arises whenever there is a change in the amount or quality of environmental elements. Consequently, this will have a negative impact on people's health.

Environmental concerns were increasingly prominent in the public consciousness in the latter part of the 20th century (Maslin, 2005). Modern cultures are under increasing pressure to produce industrial chemicals, which has put a strain on natural resources including water, arable land, and raw minerals. A few of the many advantages of its widespread use include increased financial riches, longer life spans, and a cleaner environment. Next, it is clear that rising industrialization has an impact on natural processes and poses a risk to the environment. Although several areas of industry may raise people's quality of life, it is still unclear how much of a quiet existence they would be able to enjoy. Green places are being relocated by several industrial businesses. On the other hand, there is proof that maintaining international peace and security depends on green places. The evil of humans is a serious threat to the environment. Even the most ardent deniers of climate change seemed to be aware of the situation starting about 1880. (Spencer, 2008). The two most frequent sources of these emissions were automobiles and industrial chimneys. These gases' gradual release posed a constant threat to the Earth and gradually harmed its atmosphere.

Additionally, the Earth's surface temperature is increasing uniformly across the entirety of its surface. The effects of rising temperatures are already being noticed on a global scale. Every region of the world has indications, some of which point to a decline. They are also to blame for changing weather patterns and eradicating species that were formerly alive. According to National Geographic, ice melting is a worldwide occurrence, especially in the Earth's poles, in 2007. Mountain glaciers as well as ice sheets from West Antarctica, Greenland, and the Arctic Ocean fall under this group. Sea levels have increased as a result of the century-long increase in the frequency and severity of hurricanes and other severe storms. If global warming continues, other effects might occur later in this century. The globe is made up of two living species, humans and the environment. All of the parts work together and have an underlying link. This is because if it were to ever be separated, a global imbalance would result. A planet that is necessary for the survival of all species must be protected by people.

However, it is clear that the standard of living in this area is deteriorating with time. People's actions reveal their mental states and provide an explanation for why this situation persists. According to recent data, there have been more natural disasters in the last year.

According to Michael, El Nino is to blame for every year's record-breaking high temperatures (2004). He said that the 1998 temperature record was the result of El Nino, one of the three most catastrophic natural disasters in the previous century. A stepping stone in the process of changing people's thoughts may be provided by books like these because of their capacity for change and instruction. The literary work was a "material thing, whose operation could be analysed much as one would inspect a machine," rather than a means of disseminating ideas, reflecting social reality, or revealing some transcendental truth, according to Eagleton (1995). Hamish MacDonald's *Finitude* was released for the first time in 2010. Both a print edition and a digital version are offered. The primary environmental issue is addressed in the book *Finitude*. This book properly satisfies the requirements for science fiction. However, the author's presentation of the story is not always used. The author makes an effort to explain the current phenomenon that has been felt on a worldwide basis.

The study of the connections between nature and all parts of human existence, including but not limited to literature, is known as eco-criticism. Our sense of who we are and how we fit into the world are closely intertwined. To call a place home, one does not have to be a resident. The environmental perspective in literature changes as ecocriticism becomes more prevalent. Cheryll Glotfelty's concept of ecocriticism serves as the theoretical framework for this inquiry. "The study of the human and the non-human, via the cultural history and engagement of humans, to a critical examination of the term human itself," according to Glotfelty (1996), is what is meant by ecocriticism.

Research Objectives

- To investigate the environmental issues especially global warming in Macdonald's *Finitude*.
- To closely examine how greenhouse gases affect the environment.
- To examine the causes and effects of global warming through the perspective of ecocritical theory

Research Questions

1. How does Macdonald's *Finitude* deal with environmental issues, especially the issue of global warming?
2. To what extent greenhouse gases emitted by humans contribute to global warming, and what effects we can anticipate from this phenomenon
3. What are the causes of global warming and its effects?

Significance of the Research

This inquiry is anticipated to provide light on the following areas: Other scientists may learn from this study how to protect and maintain the ecosystem. They could become more aware of environmental issues as a result. It emphasises the negative effects on Earth and gives a realistic portrayal of the situation. This will serve as a nice reminder to encourage people to protect the environment. As a result, they will have a better awareness of global environmental issues and how human behaviour affects the ecosystem.

Focus of the Research

The researcher is generally interested in environmental concerns since she thinks MacDonald's environmental topic is his finest accomplishment as a novelist. The imaginative narrative style of MacDonald makes the idea particularly relevant in this situation. The destroyer and the harm it does in this case are the environmental problem.

Environmental problems can also be seen as situations that have the potential to be extremely harmful. The ecology and all forms of life are in risk as a result of these terrible effects. The phrase "environmental concern" in this context relates to climate change, a current hot topic of debate. Worldwide warming, which is caused by a number of factors, is primarily responsible for damage on a global scale. The first book to serve as a wake-up call on climate change is *Finitude*, which has received praise. Winterton in Taiwan argues that in Hamish MacDonald's "*Finitude*," civilization "teeters on the edge of extinction after failing to clean up its environmental act and safeguard the world". This is a well-organized, fascinating, and quick attempt to imagine a future that worries a lot of people. The researcher feels confident in choosing this book as his study object since it may be the ideal example for enlightening readers about environmental concerns and encouraging understanding.

2. LITERATURE REVIEW

The theory guiding the ecocritical approach and how it relates to literature will be covered in this point. The researcher provides a brief overview of environmental challenges in an effort to extract further details about the study's foundation. The audience of the research will have a better understanding of the context of Finitude. There is also a summary of the book's environmental concerns. It will be the main focus that clarifies the study's goals for the readers. This section serves as the study's major argument since it focuses on environmental concerns and how they are represented in the book. The majority of people spend much of their time forgetting they exist because they are not aware that the place they call home is a part of the natural world. Literary critics might sometimes hold the view that writing can only speak to moral and social issues. There are "without publications, jargon, work, or employment.

A conference on literature and the environment doesn't exist, nor are there any literary groups (Glotfelty,1996). This supports the idea that, despite their frequent awareness of and interest in social issues, literary professionals usually lack awareness of their immediate surroundings but the idea that literature is a multifaceted discipline started to catch on in the late 1970s (Glotfelty, 1996). As is generally known, literature has an impact on every facet of life and every component of every living thing. In the past year, the environmental problem has become more popular.

A pioneer of ecocriticism, Cheryll Glotfelty defines it as "the study of literature and the physical environment," and she is interested in it. She looks for a comparison to feminist criticism, which accomplishes the same task but analyses language and literature from a gendered perspective. According to Glotfelty (1996), literature is a crucial component of a system in which energy, matter, and ideas interact with one another since everything is interrelated. She goes on to say that ecocriticism is simply a literary criticism that is earth-centred and focuses on how literature both influences and is influenced by the natural world.

According to William Rueckert in "Literature and Ecology: An Experiment in Ecocriticism," ecocriticism is "the application of ecology and ecological principles to the study of literature" (quoted in Glotfelty, 1996). This is due to ecology's "highest importance to the world's present and future".

The researcher feels that his study is founded on an examination of ecological concerns since he is interested in learning what kinds of environmental challenges exist in Finitude. But he did it because he understood that highlighting environmental issues would help readers of the study create an intertextual

meaning. This suggests that he is making an effort to draw literary inspiration from environmental concerns.

According to Christopher Manes, "to view nature as living and communicative has implications in the arena of social behaviours" (Glotfelty, 1996). Manes asserts that civilization and history always have an impact on how we perceive the natural world.

3. THEORETICAL FRAMEWORK

Literature comes in a wide variety of forms, including plays, short stories, poems, and novels. A book is a fictional narrative that attempts to mimic real life by covering a range of subjects. Writing subjects include experiences, characters, conflicts, and events, both real and made-up. As a result, it could accurately depict what people experience in the real world. All of these clues suggest that the environmental problems mentioned in *Finitude* are real.

Some claim that MacDonald's *Finitude* is an example of ecocriticism since it places a strong emphasis on the current situation of the environment. This book shows how human behaviour may result in a global disaster, but it also gives readers the benefit of the doubt regarding their ability to deal with the environmental difficulties it discusses. These are the justifications for the researcher's motivation to gather information about environmental issues in *Finitude*. Nevertheless, global warming cannot stand alone and there are some environmental issues which become the causes of it. They are the greenhouse effect, carbon cycle, and forecast. After elaborating the environmental issues in *Finitude* novel, the researcher invites the readers of his research to know about the ways environmental issues are depicted in this novel. It is expected that the readers can derive understandings of the depiction's process of environmental issues.

Moreover, as a content analysis research, this research applies framework of thinking. s based on the theory global warming itself as the main environmental issue in *Finitude*.

Consequences of Global Warming

Harmful solar radiation for the environment: The idea of the greenhouse effect was initially proposed by Joseph Fourier. In 1824, Claude provided further evidence and reasoning. More precise measurements were made by Pouillet in 1827 and 1838, John Tyndall in 1859, Svante Arrhenius in 1896. (Soden, 2000) One of the primary causes of global warming is the greenhouse effect (2001).

The atmosphere's greenhouse gases absorb energy and emit it back in all directions. The average surface temperature is greater than it would be in the absence of the gases because some of the re-radiation is returned to the surface and lower atmosphere.

His justification is that heat is trapped in the lower atmosphere by gases like water vapour, carbon dioxide (CO₂), methane, and nitrous oxides, which leads to an increase in Earth's temperature. These gases have excellent infrared absorption and emission properties.

Worldwide Warming

Swedish physicist Svante Arrhenius made the initial calculations in 1896 that suggested human activity may significantly increase Earth's surface temperature by adding carbon dioxide to the atmosphere, and Thomas Chamberlin independently confirmed these findings in 1902. Maslin (2005)

The development of the global warming idea is evidence of the interdependence between science and society. Society has a crucial part in scientific progression since science cannot advance if society does not (Maslin, 2005).

Maslin (2005) asserts that because global warming impacts all aspect of society and calls for intense focus to address, it is one of the most divisive issues of the twenty-first century. Although scientists are undoubtedly concentrating on global warming, their interests are quite diverse.

This natural tragedy is different from the others that every country inevitably faces. The greatest threat to our species is global warming, which jeopardises the safety of all life on Earth. As a result, more and more individuals are becoming aware of the dangers that this movement poses.

Thermogenic Gases

Maslin (2005) claims that burning fossil fuels and clearing forests both cause the atmospheric concentration of greenhouse gases like carbon dioxide to increase. CO₂ levels have peaked, according to observable data. Some researchers believe that this is what is causing global warming to accelerate more quickly than it has in a very long time.

Radiation Coming from a Dark Object

Blackbody radiation, according to Archer (2011), is the process through which
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energy is transferred from the Sun to Earth by electromagnetic radiation (light). If the oscillations of an electrical field are caused by the vibrations of an object's chemical bonds, then the object can both absorb and emit visible light.

It is thought that electromagnetic radiation or light may be the medium via which the Sun and Earth exchange energy. The sun's energy travels to the Earth, where it is converted to heat and then released again into space as blackbody radiation.

Treiber Gases

Global warming is caused by tiny molecules in the atmosphere known as greenhouse gases (GHGs), claims Houghton (2009). This kind of warming has been associated with droughts, tornadoes, melting ice, rising seas, salt water intrusion, evaporation, and other climatic changes and effects (N₂O). We may infer from Archer's classification of greenhouse gases that they are a group of gases that all have a role in the onset of global warming.

Conditions Meteorologically

According to Dutch (2010), wind is the result of the Earth being heated unevenly by the sun, whereas heat is the amount of energy required to increase the temperature by one degree Celsius. Scientists must compute the overall heat capacity of the climate system after calculating the net energy change in the system.

The Planet's Atmosphere, Seas, and Land

Heat and wind must be used as energy sources since they are both necessary for life on Earth. If people don't use this energy wisely, the inevitable destruction will keep happening. In order to monitor or regulate the strength of wind circulation caused by solar heating and heat that has been trapped on Earth, effective administration and computation are required.

Due to its emphasis on the environment and how it is portrayed in the book, some have said that MacDonald's *Finitude* is an example of ecocriticism. This book shows how human behaviour may cause world catastrophe while also assuming that readers know the environmental challenges it describes.

4. DISCUSSION

Glotfelty (1996) lists a number of topics that Eco critics look at, including how nature is depicted in literature. This suggests that literature has the capacity to act

as a conduit for the expression of the natural world. Ecocriticism aims to show that the natural world is capable of being discussed. Global warming is a growingly critical environmental issue as the world warms. This event has lessons for all of humanity. The natural world is conscious and speaks. The disaster will happen eventually, but not before certain warning indicators serve as a global wake-up call.

Harmful solar radiation for the environment: The increase in the average world temperature is a result of the greenhouse effect. The study's explanation of blackbody radiation, the main contributor to the greenhouse effect, may be found in this section. Blackbody radiation is associated with energy transported from the Sun to Earth via electromagnetic radiation (light) (Archer, 2011). This could be one sign that the natural world is in danger the policeman replied. What do you think, then? What will you do if you are required to pay the fine?

“The renter was found flash-cooked in his chair, with his hair burned off and his pyjamas and housecoat melting to his body, after Jeremy had thoroughly searched the apartment. Jeremy entered the kitchen after that”.

In Light of MacDonald (2010)

Jeremy and the policeman have the conversation that has been detailed. A pivotal figure in the story is Jeremy. Our understanding of greenhouse effects depends on his decision. Because the Sun uses electromagnetic radiation to transmit energy to the Earth, blackbody radiation is a real phenomenon. From what has been said, it is clear that Jeremy is feeling the heat energy from the fire's blackbody radiation. It could happen as a result of a conduction mechanism involving metal or another material and a calorie. Several items receive thermal energy transfer from it. As a result, items and substances close to the heat melt. More data from the study is needed to determine whether this blackbody radiation is one of the factors contributing to the melting of the ice in polar regions. Blackbody radiation from the sun may cause the polar ice caps to melt. Tsunamis and rising sea levels are unavoidable consequences if nothing is done to stop them. Gases that trap heat in the atmosphere are referred to as greenhouse gases or trace gases.

Her findings indicate that greenhouse gases are the most significant environmental issue in the book. These events explain how the Earth retains some gases in situations. She told him that the passengers on that ship perished horribly. When they travelled through the region, methane was probably released from clathrates or ice deep beneath the ocean, where it had been stored for aeons.

The previous sentence was spoken by Jeremy and Despendra. Despendra describes how the ocean has long served as a methane repository. Methane is a

greenhouse gas, so it seems sense that there is a significant quantity of it stored on Earth and that it is always ready to escape. Therefore, this controversy provides additional proof that greenhouse gases may be emitted at inconvenient times, hastening the beginning of greenhouse effects.

Currently, the gases themselves are primarily responsible for the greenhouse effect. The discussion of greenhouse gases dominates this section of the story.

Unusual Environmental Circumstances

Thirdly, the greenhouse effect is enhanced by heat and wind. People throughout the world are familiar with the elements of heat and wind. Sadly, a sizeable portion of the population is still unaware of the danger posed by this all-too-common occurrence and its role in global warming.

It is reasonable to believe that heat and winds do contribute to global warming in light of the evidence above. This view is supported by this portion of the text. I've had ladies wish for my death before, but this is a first, he said as he sat down on the sofa next to Jeremy. You heard that, right? Has Des mentioned any potential havens? The young man shook his head. Then this must be hot, right? All of this has happened as a result. Where is the coldest place on Earth, I hear you ask? Jeremy responded innocently, like a young child. "Iktyault." According to (MacDonald, 2010)

The subject at hand is being discussed by Jeremy and Victor. They look for a crisis solution and work to put it into action. This is a result of the sea levels rising, which will eventually flood many cities. Victor claims that a major factor is the high temperatures. Ice melts due to heat, and if the melting process continues, the water level will rise. Unquestionably close to the water, coastal areas are more vulnerable to heat. Coastal regions are some of the first to experience destruction as polar ice melts as a result of rising temperatures.

5. CONCLUSION

The study concludes with the kind of environmental issues raised in *Finitude* by George MacDonald and how they are represented as the greenhouse effect. The greenhouse effect, which occurs when heat from the atmosphere is absorbed and held on Earth, is the first effect of global warming. Due to the quantity of greenhouse gases that are beyond human control, this is also possible. Along the protagonists' journey, a number of incidents and acts help to illustrate the greenhouse effect. As a result, there is a serious environmental issue. Three

different processes combine to create the greenhouse effect. The three are thermal and wind currents, greenhouse gases, and blackbody radiation. All environmental concerns are based on a variety of factors that cause global warming. Heat conduction is the main factor in a blackbody's radiation.

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