

**ECOLOGICAL APOCALYPSE IN STEVENS' *BEFORE THE FLOOD* (2016)**

**THESIS**

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UNIVERSITAS ISLAM NEGERI MAULANA MALIK  
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**ECOLOGICAL APOCALYPSE IN STEVENS' *BEFORE THE FLOOD* (2016)**

**THESIS**

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## STATEMENT OF AUTHORSHIP

I state that the thesis entitled “*Ecological Apocalypse in Stevens’ Before the Flood (2016)*” is my original work. I do not include any materials previously written or published by another person, except those cited as references and written in the bibliography. Hereby, if there is any objection or claim, I am the only person who is responsible for that.

Malang, 09 December 2024

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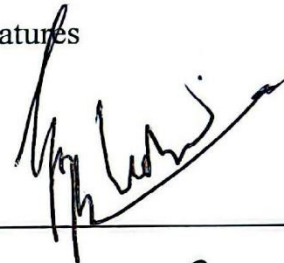
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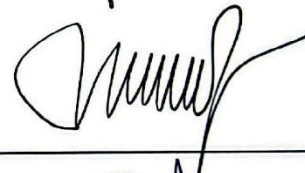
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**MOTTO**

*“Unbowed, Unbent, Unbroken.”*

(House Martell in Game of Thrones)

## **DEDICATION**

I give thanks and praise to Allah SWT for all of my many blessings.

Then, I faithfully dedicate this thesis to:

My beloved parents, Mr. Musofa Efendi and Mrs. Jumiasih, and my beloved brother, Damarsha Ossie Efendi.

Thank you for always praying and supporting me until I completed this thesis.

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Praise be to Allah SWT for all His blessings and grace so that researcher can complete the thesis entitled “**Ecological Apocalypse in Stevens’ *Before the Flood* (2016)**” well and on time. This thesis is prepared to fulfill one of the requirements to obtain a Bachelor of Literature (S.S.) degree at UIN Maulana Malik Ibrahim Malang. Shalawat and salam may be poured out to the Prophet Muhammad SAW, who brought the religion of Islam by providing a very meaningful example, for all mankind in this world.

In the process of making this thesis, the researcher does not forget to say thank you to various parties who have helped in providing encouragement from the beginning until this thesis can be completed. This gratitude is addressed to:

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Finally, the researcher hopes that this thesis can be a reference for future readers regarding the development of the concepts of ecocriticism and ecological sustainability in Stevens' *Before the Flood* and remind readers of the importance of caring for nature. However, the researcher realizes that this thesis is not perfect and still has shortcomings. As a result, constructive criticism and recommendations are welcome in order to improve this thesis and further future study.

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## ABSTRACT

**Efendi, Calvin Marcello. (2024).** *Ecological Apocalypse in Stevens' Before the Flood (2016)*. Undergraduate Thesis. Department of English Literature, Faculty of Humanities, Universitas Islam Negeri Maulana Malik Ibrahim Malang. Advisor: Prof. Dr. Hj. Mundi Rahayu, M.Hum.

**Keywords:** Ecocriticism, Ecological Apocalypse, Ecological Sustainability

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This study aims to determine the forms of ecological apocalypse, and to find out the actions to improve ecological sustainability in Stevens' *Before the Flood*. Stevens' *Before the Flood* has a duration of 96 minutes. To analyze this film, researcher used a film studies approach. The findings of this study, first, the researcher answered the forms of ecological apocalypse in Stevens' *Before the Flood*, namely: climate change, depletion of natural resources, and natural imbalance. In conducting this research, the researcher used Garrard's (2004) concept of ecological apocalypse, which is part of ecocriticism. Second, the researcher answers the actions to improve the ecological sustainability of Stevens' *Before the Flood*, namely: renewable energy, environmental taxes, and sustainable city. In conducting this research, the researcher used the concept of ecological sustainability from Tomkin and Theis (2013). This research is expected to provide insight to readers about the importance of taking good care of nature so as not to cause disasters continuously. Therefore, the researcher suggests that future researchers can conduct similar research by considering what will happen if humans do not take good care of nature.

## ABSTRAK

**Efendi, Calvin Marcello (2024).** *Kiamat Ekologis dalam Before the Flood (2016) karya Stevens.* Skripsi. Program Studi Sastra Inggris, Fakultas Humaniora, Universitas Islam Negeri Maulana Malik Ibrahim Malang. Dosen Pembimbing: Prof. Dr. Hj. Mundi Rahayu, M.Hum.

**Kata Kunci:** Ekokritik, Kiamat Ekologis, Keberlanjutan Ekologis

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Penelitian ini bertujuan untuk mengetahui bentuk-bentuk kiamat ekologis, dan untuk mengetahui tindakan untuk meningkatkan keberlanjutan ekologis dalam *Before the Flood* karya Stevens. *Before the Flood* karya Stevens berdurasi 96 menit. Untuk menganalisis film ini, peneliti menggunakan pendekatan studi film. Temuan dari penelitian ini, pertama, peneliti menjawab bentuk-bentuk kiamat ekologi dalam *Before the Flood* karya Stevens, yaitu: perubahan iklim, menipisnya sumber daya alam, dan ketidakseimbangan alam. Dalam melakukan penelitian ini, peneliti menggunakan konsep kiamat ekologis Garrard (2004) yang merupakan bagian dari ekokritik. Kedua, peneliti menjawab tindakan-tindakan untuk meningkatkan keberlanjutan ekologis dari *Before the Flood* karya Stevens, yaitu: energi terbarukan, pajak lingkungan, dan kota yang berkelanjutan. Dalam melakukan penelitian ini, peneliti menggunakan konsep keberlanjutan ekologis dari Tomkin dan Theis (2013). Penelitian ini diharapkan dapat memberikan wawasan kepada pembaca mengenai pentingnya menjaga alam dengan baik agar tidak menimbulkan bencana secara terus menerus. Oleh karena itu, peneliti menyarankan agar peneliti selanjutnya dapat melakukan penelitian serupa dengan mempertimbangkan apa yang akan terjadi jika manusia tidak menjaga alam dengan baik.

## مستخلص البحث

أفندي، كالفن مارسيو (2024). نهاية العالم البيئية في كتاب ستيفنز "قبل الطوفان" (2016). أطروحة جامعية. قسم الأدب الإنجليزي، كلية العلوم الإنسانية، جامعة إسلام نيجيري مولانا مالك إبراهيم مالانج. المشرف: الأستاذ الدكتور الحاج. موندي راهايو، ماجستير.

**الكلمات المفتاحية:** النقد البيئي، نهاية العالم البيئية، الاستدامة البيئية، الاستدامة البيئية

تهدف هذه الدراسة إلى تحديد أشكال نهاية العالم الإيكولوجية، ومعرفة الإجراءات الكفيلة بتحسين الاستدامة في فيلم ستيفنز "قبل الطوفان". تبلغ مدة فيلم ستيفنز "قبل الطوفان" 96 دقيقة. لتحليل هذا الفيلم، استخدم الباحث منهج الدراسات السينمائية. نتائج هذه الدراسة، أولاً، أجاب الباحث عن أشكال نهاية العالم الإيكولوجية في فيلم ستيفنز "قبل الطوفان"، وهي: تغير المناخ، واستنزاف الموارد الطبيعية، واختلال التوازن الطبيعي. واستخدمت الباحثة في إجراء هذا البحث مفهوم غارارد (2004) لنهاية العالم الإيكولوجية، وهو جزء من النقد الإيكولوجي. ثانياً، يجيب الباحث عن إجراءات تحسين استدامة فيلم ستيفنز "قبل الطوفان"، وهي: الطاقة المتجددة، والضرائب البيئية، والمدينة المستدامة. واستخدم الباحث في إجراء هذا البحث مفهوم الاستدامة من تومكين وثيس (2013). من المتوقع أن يقدم هذا البحث نظرة ثاقبة للقراء حول أهمية العناية الجيدة بالطبيعة حتى لا تتسبب في كوارث بشكل مستمر. لذلك، يقترح الباحث أن يقوم الباحثون المستقبليون بإجراء بحوث مماثلة من خلال النظر فيما سيحدث إذا لم يعتن البشر بالطبيعة بشكل جيد.

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# CHAPTER I

## INTRODUCTION

This chapter provides a concise overview of the study, including the research background, the research question, the significance of the research, the scope, and limitations, as well as definitions of essential terms. Each of these sections is detailed individually.

### **A. Background of Study**

Nature and humans are two things that are always close and have a reciprocal relationship. Nature is intended to fulfill the requirements of human life, and vice versa. Humans are intended to take care of and defend nature (Permatasari & Amri 2020). The topic of nature is a serious one that needs to be addressed by more people on the planet. Increasingly, nature-related disasters are being reported in various parts of the world with a large number of fatalities as a result of various causes. One of the causes is the lack of understanding of nature issues. As a result, it's of paramount importance to popularize nature's importance and significance in various educational institutions, both formal and informal, as well as public areas (Rahayu, 2020).

Nature is always needed by humans. If nature is damaged, humans will also be affected. Therefore, humans must preserve nature for their survival in the future. Although many humans have protected nature, not a few humans have also damaged it (Keraf, 2010). The Chernobyl nuclear reactor explosion, the oil rig explosion in the Gulf of Mexico, and the Lapindo Mud tragedy. In the end, natural



disasters occur as a reminder that nature should not be destroyed. Apart from man's own actions, natural disasters can also occur because of God's power.

Looking the problems that exist, various efforts have always been made to restore the balance of nature. Institutions, agencies, and communities and even the government have issued various policies, but awareness of nature has not yet improved. The protection and preservation of nature is not only the responsibility of communities, institutions, and governments. Everyone must also participate for a sustainable environment. Because, the damage to nature that occurs really requires more awareness from humans who will not be separated from nature (Sihotang, Nurhasanah, & Triyadi, 2021).

One understanding of the importance of protecting the nature, including the social environment, is to maintain sustainability. In achieving a sustainable environment, the principles of ecology are central and should not be overlooked, even in its smallest components. An ecological focus will play an important role in environmental sustainability, not only because of its potential to reduce the impact of environmental damage, but also because of its potential to introduce new concepts regarding the relationship between humans and nature (Effendi, Salsabila, & Malik, 2018).

Ecocriticism is the study of the relationship between humans and non-humans, human history, and culture associated with critical analysis of humans and their environment (Juanda, 2018). A broader perspective on ecocriticism (Garrard,

2004) is that ecocriticism can facilitate the identification, exploration, and resolution of ecological issues in a broader scope.

According to Vasso (2018) apocalypse is a concept that describes significant global disasters, universal extinction, and the end of the world. As the biggest environmental scare, apocalypse stories have serious messages about the relationship between humans and nature. For example, they criticize humans for being seduced by technological advances without recognizing the dangers they pose in the future. One example of the influence of technology is global warming, which is now a danger to life. Ironically, slow climate change has the effect of making humans unaware of the dangers. Even more dramatically, the threat was eventually dismissed as a fairy tale. Schatz (2012) describes how it often takes images of destruction to inspire people to address the damage that has been done over a period of time. In this reality, awareness of impending disasters is essential to creating a thoughtful approach to natural ecology. Therefore, when considering apocalypse stories, it may not be far from the role of imagination, as it has not yet happened. However, they have had a successful persuasive effect intended to instill a sense of human responsibility and ethics towards nature (Triastuti, Anshari, & Saguni, 2021).

The film industry can have a positive impact on tourism development and cultural education to the community. According to (Kristiyono, 2017), film is a tool to convey various messages to the audience through a media story. Film is a medium of artistic expression as a tool for artists and film people in expressing ideas and story ideas. Essentially and substantially, films have a power that will have

implications for communication in society. Watching films can also have an influence or effect, such as watching comedy films can make you laugh at the behavior of actors, watching drama films can make you cry. In addition, watching a film can also encourage someone to behave and do something or can motivate someone to do something that feels quite interesting (Manalu & Warsana, 2021).

According to Setiadi (2016), communication is the process of conveying a message by someone to another person to inform or change attitudes, opinions, or behavior both verbally and non-verbally through the media. The communication process is essentially the process of conveying the thoughts or feelings of a person (communicator) to another person (communicant). These thoughts can be in the form of ideas, information, opinions, and others that come to mind. Communication itself has many types, one of which is mass communication. According to Timbowo (2016), mass communication is communication that uses mass media as a channel for communication messages. Mass communication is communication through modern mass media, including newspapers that have wide circulation, radio and television broadcasts for the public, and films that are shown in film theaters.

*Before the Flood* is a documentary film directed by Fisher Stevens, narrated by Leonardo DiCaprio, and distributed by the National Geographic Channel. The film contains documentation of a three-year journey, visiting several places around the world to review the impact of climate change on nature. The film depicts the state of global warming. This film narrated by actor Leonardo DiCaprio's who travels around the world exploring various parts of the world, and reviews climate change in various parts of the world, one of which is Indonesia. In this film

describes climate change that has a major impact on life on earth. Mining, burning forests, and various other things are the cause of climate change. In this film, almost all the interviewees state that global warming and climate change are caused by human activity and fossil burning. But the political elite do not agree with this because of their personal interests. Similarly, businessmen oppose the issue of climate crisis due to fossil burning in order to continue running their business.

There have been many studies that research ecocriticism, among others: Short story studies, Taqwiem (2020), Widyaningtyas & Liliani (2020), Fitriani & Nida (2023); Novel studies include: Fadli, Yuniawan, & Nuryatin (2021), Supian, Manugerren, & Purwarno (2022), Jihad (2022), Bachtiar (2019); Film studies include: Akhiyat (2021), Fatchia (2022), Alfiah, Putra, & Gultom (2020), Samantha (2018). From some of these research results, the literary works studied are short stories, novels, and films. The results of these studies reveal the phenomenon of ecocriticism contained in the content of literary works. However, there are no researchers who focus on “Apocalypse” as a study in revealing environmental phenomena. Therefore, the reason for choosing *Before the Flood* film is that it shows a picture of a world devastated by climate change caused by global warming.

Taqwiem (2020) researched the relationship between literature and nature, focusing on environmental criticism in the short story *Kulah* by Gus Tf Sakai. Taqwiem (2020) introduced the concept of ecocriticism as a multidisciplinary approach in analyzing literary works, which emphasizes the importance of understanding literature from the perspective of nature. It also highlights the impact of hazardous waste, the loss of green areas, and the need for ethical treatment of

nature. Widyaningtyas & Liliani (2020) researched the importance of living in harmony with nature and the principles of environmental ethics as depicted in newspaper short stories in Indonesia. This research emphasizes the importance of social change to reduce environmental problems caused by overconsumption and overexploitation of nature, using an ecocritical approach to analyze the stories. Fitriani & Nida (2023) researched environmental conservation efforts in Sundanese short stories, focusing on efforts to conserve flora and fauna through replanting forests, prohibiting deforestation, prohibiting overfishing, and using environmentally friendly tools. It also highlights the importance of environmental conservation and love for nature in Tatar Sunda.

Fadli, Yuniawan, & Nuryatin (2021) researched the natural destruction depicted in the novel *Serdadu Pantai* by Laode Insan using ecocriticism theory. This research focuses on the destruction of coral reefs and polluted coastal waters, caused by human activities, driven by social and economic factors. Here, underlining the importance of ecological awareness and environmentally responsible behavior to mitigate such damage. Supian, Manugeran, & Purwarno (2022) researched the theme of tin exploitation in the novel *Rainbow Troops* by Andrea Hirata from an ecocritical perspective. Supian, Manugeran, & Purwarno (2022) explored traditional and modern methods of tin mining on Belitung Island, emphasizing environmental impacts and ethical considerations. Here it clearly illustrates the consequences of tin exploitation, urging readers and the government to prioritize wise resource management for environmental protection. Jihad (2022) explores the representation of nature and human-nature relationships in Bruce

Chatwin's *On the Black Hill* through the lens of pastoral and environmental wisdom. Jihad (2022) compared urban and rural life, emphasizing the peaceful abundance of the countryside. This research highlights values such as respect for nature, moral responsibility, and cosmic solidarity, using the Interactive Model Analysis method and an ecocritical approach. Bachtiar (2019) researched the representation of nature and its management in the novel *The Hobbit* by J.R.R. Tolkien through the lens of Ecocritical theory. With a focus on the significance of natural control and the risk of industrialization, this research examines the portrayal of environmental motifs in the novel. In particular, characters such as Gandalf, Radagast, and Hobbits reflect various ways in which people can look after nature, while Elves are shown as the original custodians of nature in Middle-earth.

In the study of *Moana* by Akhiyat (2021), the film is examined using ecocriticism, which highlights the issues of nature exploitation, human greed, and the ways through which one can be reconciled with the environment. The investigation reveals how Moana is an eco-centric figure and takes it upon herself to regain a sustainable relationship with nature by giving back Te Fiti's heart. In her research, Fatchia (2022) analyzed dwelling as a concept in *Captain Fantastic* with an ecocritical view. The present research analyzed the various dwelling models presented in the film, including Georgic and Modern Georgic, and examined the moral values imputed to them. The study underlined the connection between human beings and their surrounding environment by discussing other dwelling models referred to in literature and cinema. Alfiah, Putra, & Gultom (2020) had undertaken an ecological reading of *The Chronicles of Narnia: Prince Caspian*, with Garrard's

ecocriticism being taken as a theoretical basis for the discussion. Several themes studied were the relations of people and nature, animal rights, and ecofeminism, which suggested how humanistic concepts serve as a starting point for the protection of nature. The findings of this study are essential tools for raising awareness regarding the environment and its impact that results from human actions. Samantha (2018) conducted research into the portrayal of humans' relationship with nature in the film *The Shape of Water* through ecocriticism and ecopsychology. This research analyzes how nature is shown in the film, focusing on the interaction between humans and nature, particularly through the monster characters. Nature is crucial to human beings and the environment, this study argues, and people ought to sustain good living relationships with nature.

In this research, the focus is to find out what are the forms of ecological apocalypse and the actions to improve ecological sustainability in Stevens' *Before the Flood*. The previous studies focused on the problem of ecological damage. Then the supporting theory that researcher use is Garrard's (2004) ecological apocalypse concept and Tomkin and Theis (2013) ecological sustainability concept to analyze the film.

## **B. Research Questions**

1. What are the forms of ecological apocalypse in Stevens' *Before the Flood*?
2. What are the actions to improve ecological sustainability in Stevens' *Before the Flood*?

### **C. Significance**

Theoretically, this research is expected to add to the scientific concept of ecocriticism and ecological sustainability can add to the treasury of research in the field of film, especially in nature genre films. Practically, this research is expected to increase appreciation or provide benefits to readers or viewers of film regarding human relationships with nature, especially through an ecocritical and ecological sustainability approach.

### **D. Scope and Limitation**

The scope of this research aims to limit the problem so that the research is in accordance with the predetermined plan, so that the research does not extend from the predetermined object. In addition, the limitation of the problem also serves to facilitate the work of conducting the analysis. The object of study of this research is only centered on the principles of ecocriticism and ecological sustainability approach.

### **E. Definition of Key Terms**

1. Ecocriticism: The study of the relationship between literature and cultural theories.
2. Ecological Apocalypse: Ecological apocalypse refers to acts of destruction of nature committed by humans and causing imbalance in nature and causing some damage to the environment.



3. Ecological Sustainability: A concept born from humans' desire to dwell on Earth for an extended length of time, perhaps even into the endless future.

## CHAPTER II

### REVIEW ON RELATED LITERATURE

This chapter outlines the research context for this study. This chapter explains the theories of ecocriticism and ecological sustainability. This chapter supports Garrard's (2004) concept of ecocriticism and Tomkin and Theis (2013) concept of ecological sustainability that used in this research.

#### A. Ecocriticism Approach

Ecocriticism is a new crucial discipline among modern literary ideas and cultural theories. The terms ecology and criticism are combined to make ecocriticism. Ecology is the scientific study of the relationships that humans, animals, and plants have with their surroundings and with one another. The form and expression of judgment regarding the merits or shortcomings of anything is known as criticism. To put it simply, ecocriticism is criticism of the environment. In western thought there has been a shift in the orientation of thought. Ancient thought was nature-oriented (cosmocentric); medieval thought was divinity-oriented (theocentric); modern thought was human-oriented (anthropocentric); and 20th century thought was symbol-oriented (logocentric) (Harsono, 2008).

The idea of environmental (ecological) local wisdom in literary works might serve as the foundation for ecocritical studies. The value system or way of life that local communities use to engage with their surroundings is known as local wisdom. Knowledge, ideas, understanding, insight, and norms or ethics that direct human conduct in ecological communities are all considered forms of local wisdom. In a

different context, local wisdom can be understood as knowledge and methods for governing the cosmos in order to preserve ecological equilibrium, which has been put to the test for ages by a variety of calamities, challenges, and human carelessness (Sudikan, 2016).

According to Garrard (2004), the focus of ecocriticism is to explore the ways in which we imagine and depict the relationship between humans and the environment in all fields as a result of culture. Ecocriticism is indeed inspired by (as well as a critical stance of) modern environmental movements. According to Garrard (2004) there are several forms of ecocriticism, which are as follows.

### **1. Pollution**

In the modern context, pollution is not only defined differently, but can also paradoxically support increased pollution. In an ecocritical perspective, this illustrates how science has a dual role as a cause of environmental problems and as a critical monitor of such problems. Pollution is created because of human greed and a sense of indifference to nature which is the place where humans live. Even with greed and dissatisfaction, humans make rules that negatively affect nature and cause pollution (Garrard, 2004).

Environmental pollution is becoming an increasingly crucial issue to address as it impacts aspects such as security, health, and survival. Garrard in the context of the ecological crisis also highlights the role of pollution in a quote related to this issue. Pollution manifests from various activities carried out by humans who interact directly with nature. Similarly, 'pollution' is an ecological problem because

it does not mention the name of a substance or class of substances, but rather represents an implicit normative claim that too much of something exists in the environment, usually where wrong place (Garrard, 2004).

## **2. Wilderness**

The concept of wilderness, depicting nature that is pristine and unaffected by civilization, is the most powerful representation of New World environment. It is an idea used to preserve certain habitats and species, and is considered a place that can provide refreshment to those who feel exhausted by the moral and material pollution of cities. Wilderness is a natural landscape in an area or space that has not been polluted by any civilization, wilderness is set up to protect certain ecosystems and species and in order not to be polluted by humans, people wishing to escape the city's and can go there (Garrard, 2004).

Wilderness is important for ecocriticism because it promises a renewed, authentic relationship between humans and the earth. Because the wilderness has no connection to civilization, it can be concluded that humans have a new opportunity to properly care for nature when they discover a part of the wilderness. Because in fictional life one can create a separate wilderness area specifically in order to illustrate how to properly care for wilderness things (Garrard, 2004).

## **3. Apocalypse**

Apocalypse refers to an unnatural state of nature characterized by climate change, destruction, environmental decline, extinction, and increased potential for disaster caused by human activity. Socially, the genre emerges as a response to

crisis, and at the same time becomes a rhetoric that exaggerates that crisis to appropriate end-time proportions (Garrard, 2004).

Apocalypse is implemented with a harsh and ugly image coupled with glimpses of a world that has changed. For example, nature has been damaged, the climate is unstable, and the weather often changes in extremes that cannot be predicted by human scientific calculations. Disaster or apocalypse in this research is considered as the end of the history of human life. It is a description of unstoppable destruction, as a sign of the end to come, but not as a warning against it (Garrard, 2004).

#### **4. Dwelling**

This concept discusses models of human habitation. Residence is not just a place to live but a place to live life, several literary works explore the possibility of coming to live on earth through a bond of duties and responsibilities. The state of “dwelling” is not something temporary; rather, it indicates the long-term association of humans with landscapes of memory, ancestry, death, ritual, life, and work (Garrard, 2004).

Dwelling is something positive because it leaves things in their natural state. Its significance in the ecocritical view is very evident in this regard, as it is an action worth following in preserving the place where we live. However, to do this it is important to respect and love the dwelling itself (Garrard, 2004).

## **5. Animals**

The cruel treatment of animals is considered akin to slavery, and this theory argues that the ability to feel pain, not just the ability to think, gives the creature a moral basis. Animals are part from the nature, animals and humans must be treated with the same rights in one unit called life without having to differentiate between the two. Thus, human mistreatment and cruelty to animals can be avoided. Restrictions that separate humans from animals are arbitrary and, more importantly, irrelevant, as we share with animals the ability to feel suffering that only an arbitrary ruler can ignore (Garrard, 2004).

The concept of animals in this research is about the study of the relationship between animals and humans in the humanities which is divided between considerations of animal rights and cultural analysis of animal representation (Garrard, 2004).

## **6. Earth**

Earth in the concept of this study is a picture of life on earth in the future. How beautiful a world that is so green and blue must be stained by the selfishness of a creature when not only the creature itself is the only owner of the legal rights in the “earth”. The existing earth is described as a very fragile, small, and isolated like something never predicted before (Garrard, 2004).

Postmodern ecology does not take us back to the old mythical view of Earth that has lost its ecological critique aspect. Nor does it provide evidence that nature knows best. Future Earth-focused value systems and metaphors must acknowledge

fundamental uncertainties, but this will only increase our obligations and responsibilities as the most dominant species on the planet. (Garrard, 2004).

## **B. Ecological Apocalypse**

Ecological apocalypse refers to acts of destruction of nature committed by humans and causing imbalance in nature and causing some damage to the environment (Garrard, 2004). Ecological apocalypse is not just a scientific description of environmental destruction, but a critical construction that intends to transform human consciousness about their relationship with nature. According to Garrard (2004), there are three forms of ecological apocalypse, namely climate change, depletion of natural resource, and natural imbalance.

### **1. Climate Change**

Garrard (2004) describes climate change as any significant long-term alteration in temperature, precipitation, and wind of a region or the entire planet. It's primarily caused by human activity, specifically the release of greenhouse gases into the atmosphere (such as carbon dioxide), which traps heat and contributes to the global warming. Climate change is not only an environmental problem but also a socio-political problem involving global inequality, where developing countries are most vulnerable to suffer the impacts despite their smallest contribution to emissions (Garrard, 2004).

The impacts of climate change and global warming cause natural disasters such as landslides, floods, and storms. But what is equally important is to make

development planning sensitive to the impacts of climate change. It is not enough to respond to natural disasters after they occur (Rahayu, 2017).

## **2. Depletion of Natural Resource**

Garrard (2004) describes the depletion of natural resources as the result of human activity that exceeds the earth's capacity to regenerate and replenish these resources. Garrard believes that natural resources, such as fresh water, forests, and fossil fuels, are finite and cannot be sustained infinitely if they are utilized at a rate that exceeds their natural regeneration.

Garrard identifies multiple causes of resource depletion, including overconsumption, overfishing, deforestation, and over-mining of fossil fuels. These activities lead to the destruction of biodiversity, habitat loss, climate change, and other problems that can cause social, economic, and political harm.

Garrard promotes practices that are sustainable and focus on the conservation and responsible utilization of natural resources. This involves reducing waste, promoting alternative energy sources, and embracing a circular economy that focuses on the re-use and recycling of resources. He also mentions the necessity of international cooperation and coordination in addressing the depletion of resources on a global scale.

## **3. Natural Imbalance**

Natural imbalance is the violation of the natural equilibrium or balance in ecosystems that is caused by human activity (Garrard, 2004). Garrard believes that human actions, such as deforestation, fishing, burning fossil fuels, and over-mining,



have led to imbalances in the natural systems that support life on Earth. For example, gold mining employs several primitive methods and practices that, over the long and short term, negatively affect nature and the environment (Rahayu, 2023). These imbalances have caused biodiversity loss, habitat degradation, and other environmental issues.

Garrard states that natural balance is not a singular concept, but rather a dynamic process that is characterized by the interactions between organisms and their habitat. When this equilibrium is lost, it can have significant consequences for both the natural world and human society. For instance, the depletion of natural resources can lead to food and water shortages, while the loss of biodiversity can have negative consequences on human health and well-being.

Garrard believes that addressing natural imbalances necessitates a holistic approach that considers the connections between different natural areas. This method reduces both human and natural impacts on the environment while also promoting environmentally responsible practices and restoring the natural ecosystem. In general, Garrard's perspective on natural imbalance underscores the necessity of recognizing and respecting the connection between all life on Earth and attempting to have a more symbiotic relationship with nature.

### **C. Ecological Sustainability**

Sustainability is derived from two Latin words: *sus* (up) and *tenere* (to hold). Currently, sustainability is a concept born from humans' desire to dwell on Earth for an extended length of time, perhaps even into the endless future. The primary

goal of sustainability is to ensure human survival. According to Tomkin and Theis (2013) there are several forms of ecological sustainability, which are as follows.

### **1. Renewable Energy**

Renewable energy is often considered to be hydro, solar, wind, biomass, geothermal, wave and tide, all of which originate from only three sources: the sunlight's light, the earth's heat, and the moon's gravitational pull. The sun's heat causes the weather to rise and fall, this is accompanied by the creation of atmospheric pressure differences that produce wind. The sun also produces the heat necessary for the vaporization of water in the ocean that ultimately lands on the earth, this creates rivers that power hydropower, and the sun is the source of photosynthesis, which produces biomass. Solar energy can be directly harvested for water and space heating, for the generation of conventional power sources that produce electricity, and as a form of excitation energy for electrons in semiconductors that promote photovoltaics (Tomkin & Theis, 2013).

Solar power has a minimal effect on the environment, depending on the location. In 2009, 1% of the renewable energy produced in the U.S. was derived from solar power (1646 million watts) of the total amount of electricity generated that was renewable (Tomkin & Theis, 2013).

Wind is a renewable energy source that is environmentally friendly and has few adverse environmental effects. Wind power is now more frequently observed across the U.S., this is especially true of areas that are traditionally considered to have little to no wind. Wind turbines are often referred to as windmills, these

devices do not release emissions that adversely affect the air or water (with rare exceptions), and they do not require water for cooling (Tomkin & Theis, 2013).

## **2. Environmental Taxes**

Environmental taxes are considered a tax on something that causes a negative impact on nature. Environmental taxes are based on the simple idea: if someone isn't paying the full cost of their actions, then we should charge them an externality tax for every unit of harmful activity (e.g. ton of pollution, gallon of stormwater runoff) that is equal to the marginal cost that is not borne by the individual. This person must internalize the externality, which will lead to an increase in their motivation to choose a level of activity that is socially beneficial. As a result, if we consider the social cost of the ton of carbon dioxide (due to its role in climate change) to be \$20, we can tax the carbon dioxide emission of \$20 per ton. The simplest way to accomplish this would be to have a tax on fossil fuels based on the amount of CO<sub>2</sub> that is released when it's burned (Tomkin & Theis, 2013).

If a price is placed on carbon dioxide emissions, all participants would have an incentive to reduce their carbon dioxide emissions to a level where the cost of reducing one more unit is equivalent to the per unit tax. As a result, several positive things occur. All of the carbon dioxide sources are converging towards the same cost of abatement, so the total cost of abatement is minimized as possible. Additionally, the total amount of emissions in the economy as a whole will be reduced to a socially effective level. Companies and individuals have a lot of

incentive to alter things in order to reduce carbon dioxide emissions: to reduce output and consumption, to increase efficiency in energy usage, to transition to less expensive methods of innovation, and to figure out how to do so. Ultimately, the government could utilize the revenue from tax payments to equalize the distribution of cost between people in the economy or to reduce other taxes on finances like income (Tomkin & Theis, 2013).

### **3. Soil and Sustainability**

The word "soil" has been defined differently by different fields of science. In agriculture and horticulture, soil is typically the medium for plant growth, it is typically located between the top two meters or more. The soil is vital to our society because of its importance to the majority of critical aspects of civilization. Our structures for buildings, as well as our homes, food, agriculture, and wood products all depend on soil. Forests, fields, and wetlands all have a connection to the soil. Obviously, soil is also important to the majority of terrestrial animals, plants, and microorganisms on Earth (Tomkin & Theis, 2013).

Soil health is typically described as the capacity of the soil to perform functions that allow water to permeate and nutrients to be circularized, this supports the growth of plants. The long-term health of the native soil is often enhanced by displacing the soil less frequently, growing a larger variety of crops, maintaining the soil's living roots, and covering the soil with residue. Stable soil aggregates are vital for soil health because they promote adequate infiltration, limiting the quantity

of water runoff. This also reduces soil erosion, downstream flooding, and sedimentation (Tomkin & Theis, 2013).

#### **4. Sustainability Ethics**

Environmental ethics that treats the Earth as if its resources are limited is considered an ethics of sustainability. To subscribe to an ethics of sustainability is to acknowledge that our rapid industrialization has placed us in the position of planetary managers, responsible for the health or destruction of many of the planet's essential ecosystems. This ethics necessitates us to engage, through the popular method, both parts of our brain. That is to say, we must transition from a rational approach to our environmental footprint to a practical concern with the reformation of our resource management systems, and a more humble, intuitive understanding of our dependence and placement within the web of life (Tomkin & Theis, 2013).

Both reason and emotion are involved. Without emotion, there is no impetus to alter. Similarly, without an intellectual foundation for sustainability, our desire for alteration will be lackluster and ineffective. Humans have the ability to adapt to a complex world and reverse the decline of a broad-based system. However, this will necessitate the use of technological knowledge alongside an ethical imagination. Humans must apply the same moral sensibility to the natural world that we use naturally in the social realm and in our interactions with others (Tomkin & Theis, 2013).

## **5. Sustainable City**

A sustainable city is characterized by cities that are adapt to, prevent, and promote social, economic, and environmental changes. Sustainable cities would have walkable neighborhoods that separate traffic for humans and vehicles, and are connected to each other via multiple transportation methods. Biking and mass transportation are both options, as well as the automobile. Sustainable cities have attempted to move stormwater away from our constructed areas via gutters, sewers, and artificial conduits. This method on the micro scale is intended to prevent local inundation and unwanted ponding (Tomkin & Theis, 2013).

Sustainable cities of the future may still serve as the hub for services like healthcare and beauty, tourism, travel, and government, as well as other services, like insurance, advertising, and financial services. These services are amenable to telework. Sustainable cities are unlikely to abandon the grid, but they should allow residents to generate their own electricity by running the meter backwards. Renewables will compete with fossil fuels until atomic fusion provides inexpensive, safe, and reliable power (Tomkin & Theis, 2013).

### **D. Documentary Film**

A documentary film is similar to a non-fiction film, but instead of a fictional narrative, it focuses on actual life events and discusses them. The name is derived from the Latin term documentation, which means evidence or proof (Stubna, Hostovecky, & Tothova, 2014).

Documentary films become a popular form of entertainment; they also have the effect of providing an illusion of being open to the world. It's this exacting sense of persuasiveness that necessitates a broader perspective on documentary films, instead of simply focusing on their technical merits, they should also be considered in regards to their reception. Additionally, the fuzzy nature of the genre's borders and the problematic issues that it poses need to be observed through a non-prescriptive, purely descriptive approach (Sapino & Hoenisch, 2011).

In this perspective, the primary forces that influence the creation and reception of documentary films will be discussed first, this will lead to a discussion of the context in which formal features are employed. As a result, documentary filmmaking will be considered from a technical perspective, with a specific focus on the similarities and differences between the genre and its natural counterpart, fiction film. The final portion will discuss the recent evolution of the genre over the past 60 years, as well as the new ways that have emerged (Sapino & Hoenisch, 2011).

## **CHAPTER III**

### **RESEARCH METHOD**

This chapter outlines the research methods. It includes sections on research design, data sources, data collection, and data analysis. The primary emphasis of this chapter is to clarify the application of research methods and the processing of data within the context of the study.

#### **A. Research Design**

This research uses a film studies approach that aims to analyze a documentary film. To conduct this film studies, the concepts of ecocriticism and ecological sustainability are used to achieve the objectives of this research. First, this study aims to explain the forms of ecological apocalypse present in Stevens' *Before the Flood*, and for that, the researcher uses Garrard's (2004) ecological apocalypse concept. Secondly, this study aims to explain the actions to improve sustainability by using the concept of ecological sustainability from Tomkin and Theis (2013).

#### **B. Data Source**

The data source used in this research is a documentary film entitled *Before the Flood* (2016) directed by Fisher Stevens and written by Mark Monroe. The film was produced by RatPac Documentary Films and distributed by National Geographic Documentary Films. This film was broadcasted on the National Geographic Channel.



### **C. Data Collection**

Data collection is a method that researcher can use to collect data. The data collection technique that researcher use is by watching and listening to the film *Before the Flood*. Then record and take pictures through screen capture on signs related to the ecological apocalypse and ecological sustainability, then identify problems in accordance with ecocritical and ecological sustainability concept.

### **D. Data Analysis**

After the data is collected, it was analyzed by the researcher as follows: Processing and classifying data based on the research questions, describing the forms of ecological apocalypse, and actions to improve sustainability in Stevens' *Before the Flood* by using the concept of ecological apocalypse from Garrard (2004) and the concept of ecological sustainability from Tomkin and Theis (2013). The concepts are used to help answer the research questions, and then interpreting and make conclusions that answer the research questions.

## **CHAPTER IV**

### **FINDING AND DISCUSSION**

This chapter explains the research questions. This chapter also contains data on the form of ecological apocalypse and data on the actions to improve ecological sustainability in Stevens' *Before the Flood*. This chapter uses Garrard's (2004) ecocritical concept and Tomkin and Theis (2013) ecological sustainability concept to analyze the data.

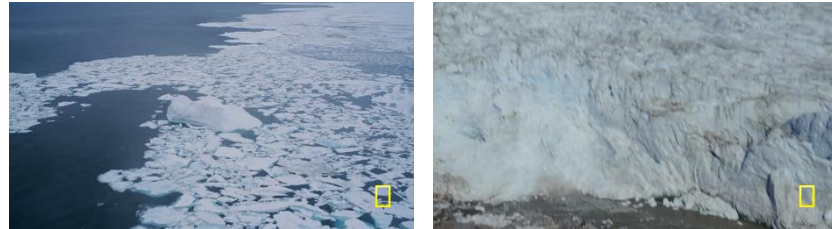
#### **A. Forms of Ecological Apocalypse in Stevens' *Before the Flood***

To find out and answer the first research question, researcher used the concept of ecological apocalypse (Garrard, 2004). The reason for using the concept of ecological apocalypse is because the concept is suitable to be used in analyzing the first research question in Stevens' *Before the Flood*. According to Garrad (2004) ecological apocalypse refers to acts of destruction of nature committed by humans and causing imbalance in nature and causing some damage to the environment. The following are the results of the analysis of the first research question.

##### **1. Climate Change**

The following is the first form of data from the first research question. Garrard's (2004) concept of ecological apocalypse was used to analyze the data. The first form of ecological apocalypse in Stevens' *Before the Flood* is as follows:

## Datum 1



(1)

(2)

Figure 1.1 Polar ice caps that are starting to melt. (minute 00:15:04 & 00:17:22)

Figure 1.1 shows the impact of global warming in the polar regions. Figure 1.1 (1) shows an ice sheet that has broken into pieces on Baffin Island, while figure 1.1 (2) shows a Greenland glacier that has begun to crack and slide. This is because human activities such as the burning of fossil fuels for heat and energy, deforestation, large-scale livestock farming, and the production of several kinds of industrial products have produced greenhouse gases. This can be proven in the statement of Dr. Michael E. Mann who stated:

*“97 percent of climate scientists agree, the globe is warming, our climate is changing, it's due to fossil fuel burning and other human activities.”* (minute 00:23:11 - 00:23:20).

The meaning of the statement is that global warming is the result of human's own actions and what can stop global warming is human himself. Figure 1.1 shows that this event is clear evidence of global warming that threatens the balance of the polar ecosystem and has the potential to cause ecological disasters in the future. Undoubtedly, this will have a major impact on global weather patterns, sea level rise and the survival of local species such as narwhals. This is in line with Garrard's

(2004) concept that climate change is a significant long-term change in temperature rise. Figure 1.1 reinforces this idea by showing tangible visual evidence of the changes occurring in the polar regions, as Prof. Jason E. Box states:

*“That's hundreds of cubic kilometers of ice that's now no longer stored on land. It's gone into the sea over here.”* (minute 00:19:20 – 00:19:28).

This ice melt phenomenon shows that changes that occur in one part of the Earth can have a huge impact that can affect the entire Earth, showing how important it is to work together to tackle climate change. And the next figure will be displayed and analyzed below.

## **Datum 2**



Figure 1.2 A flooded car on the street. (minute 00:20:19)

Figure 1.2 shows a flooded car on the street. This is based on the direct impact of rising sea levels in the Miami City, United States. This is evident in Philip Levine's statement:

*“As the sea level rises, the water's coming up, backflowing into our streets through our drains.”* (minute 00:20:27 - 00:20:33).

The statement explains the cause-and-effect relationship between rising sea levels and flooding in the Miami City. It also highlights the direct impact of climate change on the daily lives of Miami City. Figure 1.2 shows that flooding is becoming more frequent and is a major challenge for the Miami City in the face of climate change. The Miami City has taken concrete steps to adapt, such as raising roads and installing water pumps, but these solutions are only temporary. This is in line with Garrard's (2004) concept that climate change is a significant long-term change in temperature rise. Figure 1.2 presents a devastating picture, where readers can see the impacts caused by climate change. This is exacerbated by how uncaring officials in the United States are, as evidenced by Marco Rubio's statement:

*“I do not believe that human activity is causing these dramatic changes to our climate the way these scientists are portraying it.”* (minute 00:22:23 - 00:22:29).

Political debates and distrust of science will only make the situation worse. This shows that humans and the natural environment are interconnected, and collective action is needed to address the climate change that is happening. And the next figure will be displayed and analyzed below.

### **Datum 3**



Figure 1.3 Flooded onion farmland. (minute 00:38:27)

Figure 1.3 shows a flooded onion farm in Nuh village, Haryana, India. It was caused by five hours of rainfall which is equivalent to half a year. This can be proven through Sunita Narain's statement:

*“So, February and March, which is when the crops are standing, they got half the year's rainfall in just five hours.”* (minute 00:38:46 - 00:38:53).

This situation clearly makes it difficult for farmers to manage their crops and anticipate the increasingly unpredictable weather conditions. However, Sunita Narain believes that climate change around the world is largely caused by the United States, as evidenced by the fact that one American consumes the same amount of electricity as 34 Indians. This also shows how important it is to maintain the balance of nature to allow humans to live sustainably in nature. This is in line with Garrard's (2004) concept that climate change is a significant long-term change in precipitation. And this is a global challenge that requires international cooperation. And the next figure will be displayed and analyzed below.

#### **Datum 4**



Figure 1.4 A flooded house. (minute 00:40:58)

Figure 1.4 shows the real impacts of climate change in Abaiang, Kiribati. Figure 1.4 shows a house submerged in water, depicting flooding caused by rising sea levels. Anote Tong states:

*“It's well before then is going to be the crisis. And it's already happening. What we are facing at the moment is severe flooding. It's gone into the fresh water ponds and that's how people get their drinking water.”* (minute 00:40:47 - 00:41:08).

Anote Tong's statement confirms that this crisis is already happening, with severe flooding threatening the community's clean water sources. The situation reflects climate change as a global phenomenon that affects various aspects of life. Anote Tong also said:

*“We are relocating our communities from certain parts of the island to where the water has not come up. We have adopted a policy of migration with dignity. We bought a piece of land in Fiji.”* (minute 00:41:29 – 00:41:53).

This datum also illustrates the adaptation efforts made by the Kiribati government, such as internal relocation which is a short-term plan and a migration plan with dignity to Fiji which is a long-term plan. This is in line with Garrard's (2004) concept that climate change is a significant long-term change in temperature rise. From the datum, readers can understand how serious climate change is and the importance of adaptive and mitigative actions, both at the local and global levels. Kiribati's situation also illustrates climate injustice, with countries that contribute the least to climate change facing the most severe impacts.

## 2. Depletion of Natural Resource

Furthermore, the following is the second form of data from the first research question. Garrad's (2004) concept of ecological apocalypse was used to analyze the data. The second form of ecological apocalypse in Stevens' *Before the Flood* is as follows:

### Datum 5



Figure 2.1 Suncor Energy's oil sands mine in Canada. (minute 00:11:34)

Figure 2.1 shows the high level of natural resource exploitation in what was once boreal forest, as indicated by the vast oil sands mining landscape in figure 2.1. The area is now dotted with heavy machinery and mining infrastructure spread across the region, in stark contrast to its previous state. This extreme change represents a massive depletion of natural resources. Marc Mageau reveals that these mining operations started small in the 1960s and have grown into giant operations producing 350,000 barrels of synthetic oil per day. This illustrates the increasing rate of exploitation of natural resources over time, which is in line with Garrad's (2004) concept that over-mining fossil fuels is one of the causes of natural resource depletion. Figure 2.1 emphasizes the horrific visual and ecological impacts of these



operations, illustrating environmental concerns. Meanwhile, Marc Mageau's statement about the process of extracting oil from sand shows how powerful the technology used to exploit this natural resource is. From figure 2.1, we can see how the exploitation of natural resources can drastically change and have a huge impact on the environment. This shows the importance of implementing effective and efficient utilization of natural resources and ensuring that the negative environmental impacts of exploitation activities are reduced and mitigated in the long run. And the next figure will be displayed and analyzed below.

### **Datum 6**



Figure 2.2 Coal mining in India. (minute 00:35:08)

Figure 2.2 shows coal mining activities in India, reflecting the exploitation of natural resources to meet energy needs. Figure 2.2 illustrates the dilemma between energy demand and environmental impact. Figure 2.2 shows miners transporting coal under harsh working conditions. This shows that India still relies heavily on coal as its main source of energy, despite being aware of its negative environmental impacts. This situation reflects the conflict between the needs of economic development and environmental conservation. Sunita Narain highlighted India's dilemma in balancing energy access and climate change. She emphasized

that 700 million households in India still use biomass for cooking, showing a large energy access gap. This is in line with Garrard's (2004) concept that over-mining fossil fuels is one of the causes of natural resource depletion. Ashok Lavasa mentions that India has large coal reserves, indicating the potential for further exploitation of natural resources. However, overexploitation of non-renewable natural resources can threaten ecosystem balance and long-term sustainability. From figure 2.2 the reader can understand the complexity of the problem of natural resource depletion in a developing country like India. The lesson learned is the importance of finding a balance between meeting energy needs, reducing poverty, and protecting the environment through the development of renewable energy sources and changing global consumption patterns. And the next figure will be displayed and analyzed below.

### **Datum 7**



Figure 2.3 Dying coral reefs. (minute 00:44:15)

Figure 2.3 shows the condition of coral reefs that are dying or even dead. This is clear evidence of the impact of overexploitation on marine ecosystems. Jeremy Jackson mentioned that one billion people depend on coral reefs for their protein. This illustrates the close relationship between natural resources and human

well-being. The loss of 50% of coral reefs in the last 30 years shows the alarming rate at which natural resources are being depleted, exceeding nature's ability to recover. This is clear evidence of the rapid human-induced depletion of natural resources. Jeremy Jackson stated:

*“What we've done to the rest of the world is just, it's criminal.”* (minute 00:43:14 - 00:43:18).

The statement shows clear evidence of human responsibility for environmental damage. This is in line with Garrard's (2004) concept that overfishing is one of the causes of natural resource depletion. Furthermore, the assertion that the oceans absorb one-third of the CO<sub>2</sub> discharged into the atmosphere, but are unable to do so quickly due to high emissions. This suggests that the exploitation of natural resources has outpaced nature's ability to recover. This analysis provides important lessons on the importance of conservation and sustainable management of natural resources. And the next figure will be displayed and analyzed below.

### **Datum 8**

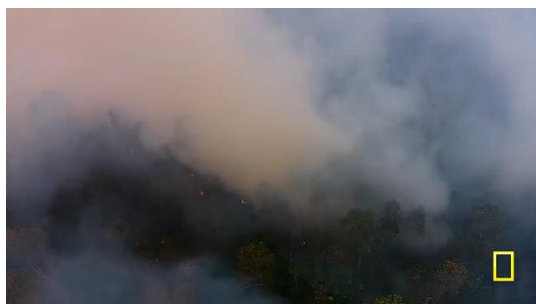


Figure 2.4 Forests burned to create oil palm plantations in Indonesia. (minute 00:47:14)

Figure 2.4 shows a burned forest, which, according to Lindsay Allen, was deliberately set on fire to clear land for oil palm plantations. This is a clear example of over-exploitation of natural resources, where biodiversity-rich rainforests are sacrificed for short-term economic gain. Lindsey Allen mentions that forest burning destroys ecosystems that play an important role in stabilizing the climate. Rainforests that act as carbon sinks are turned into “carbon bombs” that release massive amounts of emissions into the atmosphere. Forest burning in Sumatra, Indonesia is said to release more carbon per day than the entire US economy. This shows how natural resource depletion has a significant global impact. This is in line with Garrad’s (2004) concept that deforestation is one of the causes of natural resource depletion. The datum also reveals the role of global consumerism and corruption in driving natural resource depletion. Ian Singleton emphasized that consumer demand for products containing palm oil contributes to deforestation. From this datum, readers can draw lessons about the importance of consumer awareness and strong law enforcement to preserve natural resources. As Leonardo DiCaprio questions, government action is needed to curb corporate practices that damage the environment for short-term economic gain.

### **3. Natural Imbalance**

Furthermore, the following is the third form of data from the first research question. Garrad’s (2004) concept of ecological apocalypse was used to analyze the data. The third form of ecological apocalypse in Stevens’ *Before the Flood* is as follows:

### Datum 9



Figure 3.1 Polluted waters due to oil mining. (minute 00:09:39)

Figure 3.1 shows that fossil fuel mining has caused serious imbalances in nature. Figure 3.1 shows an oil-polluted beach in Canada, with two men in protective clothing trying to clean it up. According to Michael Brune, an economy that relies heavily on fossil fuels ultimately drives humans to use increasingly extreme and dangerous extraction methods. The meaning of the datum illustrates the unbalanced relationship between humans and nature. The way humans exploit natural resources has exceeded nature's own regeneration capacity, causing a severe imbalance. This is in line with Garrard's (2004) concept that natural imbalance is the violation of the natural equilibrium or balance in ecosystems that is caused by human activity. We can see how oil mining has polluted waters, damaged aquatic habitats, and endangered surrounding life. This reflects the imbalance between human needs and ecosystem health. The cleanup efforts seen in figure 3.1 show the consequences of this imbalance. To address this issue, we need more sustainable measures, such as switching to renewable energy sources, improving energy efficiency, and reducing fossil fuel consumption. By doing so, we can work towards

a better balance between human needs and the health of our planet. And the next figure will be displayed and analyzed below.

### Datum 10



Figure 3.2 Severe air pollution in China. (minute 00:30:32)

Figure 3.2 shows an unhealthy view of the air in Beijing, China. It shows a very thick fog, illustrating the severe air pollution in the region. This condition is the result of the imbalance of nature due to many industrial plants that do not comply with standards and human activities that are not environmentally friendly. In Figure 3.2 it can be seen that the problem of pollution in China, especially in Beijing, has become a serious and worrying issue for the community. This is reflected in one local resident's statement:

*"When the air is bad, my throat gets sore. We wear face masks when we go out."*

(minute 00:30:44 – 00:30:51).

The statement expressing concern about the health effects of the polluted air, especially for children. Ma Jun explains that industrialization and high coal consumption in the region are the main causes of air pollution. This is in line with Garrard's (2004) concept that natural imbalance is the violation of the natural equilibrium or balance in ecosystems that is caused by human activity. Ma Jun also

highlighted the transparency and public scrutiny efforts made to encourage factories to reduce their emissions. This shows that there is awareness and real action to tackle environmental problems. We can emulate these efforts to improve the situation through transparency, monitoring, and public awareness. And the next figure will be displayed and analyzed below.

### Datum 11



Figure 3.3 Orangutans who lost their habitat. (minute 00:49:34)

Figure 3.3 shows the loss of orangutan habitat due to the expansion of the palm oil industry in Sumatra, Indonesia. Farwiza Farhan states:

*“The expansion of the palm oil industry in Indonesia has taken over about 80 percent of our forests.”* (minute 00:48:24 – 00:48:29).

The statement signals a serious threat to the survival of orangutans, elephants, rhinos, and tigers. The meaning of this datum illustrates the severe natural imbalance caused by deforestation for economic purposes. Intentional forest fires not only destroy habitat, but also contribute significantly to global carbon emissions. This is in line with Garrard’s (2004) concept that natural imbalance is the violation of the natural equilibrium or balance in ecosystems that is caused by human activity. Figure 3.3 shows natural ecosystems being drastically altered by

human actions, resulting in biodiversity loss and climate change. The caged orangutan represents an “ecological refugee” creatures that has lost its natural habitat and is forced to live in a man-made environment. We can learn from this situation by supporting sustainable forest management practices, reducing consumption of products that contribute to deforestation, and supporting conservation efforts. Like Ian Singleton who cares for rescued orangutans, we need to take action to protect and restore the animals’ natural habitats, and support policies that prioritize ecological balance over short-term gain. And the next figure will be displayed and analyzed below.

### Datum 12



Figure 3.4 Cattle farms produce large amounts of methane gas. (minute 00:52:15)

Figure 3.4 shows a large-scale cattle farm that produces large amounts of methane gas, reflecting the imbalance created by humans. These cattle farms are clear evidence of how human activity is drastically changing the environment and climate. Data presented by Gidon Eshel:

*“In the United States, 47 percent of existing land is used for food production. And of that, most of it is just for growing animal feed.”* (minute 00:51:40 – 00:50:49).



This shows an inefficient and unsustainable use of natural resources. Gidon Eshel also says:

*“Each molecule of methane gas is equivalent to 23 molecules of CO<sub>2</sub>.”* (minute 00:52:23 – 00:52:28).

This proves that methane gas is much more impactful than CO<sub>2</sub>. The fact that 10-12% of the United States’ total emissions come from beef production emphasizes the disruption that cattle farming causes to the atmospheric balance. This is consistent with Garrard’s (2004) concept that natural imbalance is the violation of the natural equilibrium or balance in ecosystems that is caused by human activity. In this case, Gidon Eshel’s suggestion to switch from beef consumption to other more environmentally friendly foods such as chicken which can eliminate 80 percent of emissions, confirms that reducing beef consumption can make a significant difference. From this datum, we can see how important it is for every human being to be aware of and act to correct the natural imbalance that has occurred due to large-scale cattle farming and environmentally unfriendly consumption.

### **B. Actions to Improve Ecological Sustainability in Stevens’ *Before the Flood***

To discover and answer the second research question, the concept of ecological sustainability (Tomkin & Theis, 2013) was used by the researcher. The reason for utilizing the concept of ecological sustainability is because the concept is appropriate for addressing the second research question in Stevens’ *Before the*

*Flood*. Sustainability is a concept born from humans' desire to dwell on Earth for an extended length of time, perhaps even into the endless future (Tomkin & Theis, 2013). Below are the findings of the analysis regarding the second research question.

### 1. Renewable Energy

The following is the first form of data from the second research question. The concepts of ecological sustainability (Tomkin & Theis, 2013) was used to analyze this data. The first form of actions to improve ecological sustainability in Stevens' *Before the Flood* is as follows:

#### Datum 13



Figure 4.1 Solar panel utilization in China. (minute 00:32:52)

Figure 4.1 shows the large-scale use of solar panels in China as it transitions to renewable energy. This reflects the start of a change in the country's energy policy. Alvin Lin talks about this development:

*“China has some of the largest wind energy and solar energy companies in the world today.”* (minute 00:32:45 – 00:32:48).

The statement highlighting China's role as a major producer of solar and wind energy technologies. This shows that China is working to reduce dependence on fossil fuels and switch to more sustainable energy sources. The significance of this underscores the urgency of the global energy transition and China's potential as a model for other countries in adopting renewable energy. This change is in line with Tomkin and Theis (2013) concept that solar energy can be directly harvested for water and space heating, for the generation of conventional power sources that produce electricity. From the datum we can know that solutions to environmental problems must consider local and global contexts simultaneously. And the next figure will be displayed and analyzed below.

#### **Datum 14**



Figure 4.2 Tesla Gigafactory in Nevada, United States. (minute 00:57:28)

Figure 4.2 shows Tesla's lithium-ion battery production plant. Elon Musk voiced strong optimism for technology, particularly batteries, as a solution to the energy crisis. The Gigafactory is seen as a revolutionary step in the production of efficient and affordable batteries. Elon Musk emphasized that batteries are key to reducing dependence on fossil fuels and accelerating the transition to clean energy. The Tesla Gigafactory in figure 4.2 can be seen as a representation of human efforts

to find solutions to environmental problems through technology. Although battery production involves complex industrial processes, the ultimate goal is to create clean energy that is environmentally friendly. This is in line with Tomkin and Theis (2013) concept that solar energy can be directly harvested for water and space heating, for the generation of conventional power sources that produce electricity. Therefore, figure 4.2 can be visualized as a symbol of hope in human efforts to achieve a balance between technological development and environmental preservation. And the next figure will be displayed and analyzed below.

### Datum 15



Figure 4.3 Solar panel utilization in Germany. (minute 01:08:12)

Figure 4.3 shows the large-scale use of solar panels in Germany. In figure 4.3, an organized array of solar panels located in a green field is shown, reflecting the integration of renewable energy with the natural environment. Johan Rockstrom's statement that:

*"You know you wake up in Germany Saturday morning, you're likely to get 30 percent of your electricity from solar and wind, and not from a few energy utilities, but from over 2 million citizens delivering to a grid."* (minute 01:08:10 – 01:08:22).

This shows a significant change in energy production and consumption in Germany, where people have an important role in producing environmentally friendly energy. The meaning of the datum is to change habits from dependence on fossil fuels to renewable energy, as well as energy production that involves broad community participation. This is in line with Tomkin and Theis (2013) concept that solar energy can be directly harvested for water and space heating, for the generation of conventional power sources that produce electricity. By switching to clean energy sources, Germany is demonstrating a commitment to reducing pollution and preventing environmental damage. The datum above shows the real way humans can interact with nature more smoothly through environmentally friendly technology, as well as showing the potential for social and environmental changes that can be followed by other countries in responding to global environmental problems. And the next figure will be displayed and analyzed below.

### Datum 16



Figure 4.4 Windmills utilization in Denmark. (minute 01:08:24)

Figure 4.4 shows the extensive use of renewable energy in Denmark, as depicted by the giant windmills standing in the ocean. These windmills demonstrate

Denmark's efforts in adopting environmentally friendly technologies to meet their energy needs. Johan Rockstrom states:

*“Denmark today produces over 100 percent, some days, of its electricity needs from wind.”* (minute 01:08:23 – 01:08:29).

The statement signaling rapid progress in the transition to renewable energy. Johan Rockstrom's statement about “free energy forever.” reflects sustainability, where natural resources are utilized in a way that allows for regeneration and long-term use. This is in line with Tomkin and Theis (2013) concept that windmills do not release emissions that adversely affect the air or water, and they do not require water for cooling. Overall, Figure 4.4 reflects a paradigm shift in energy production, showing the potential for a harmonious relationship between human needs and environmental preservation through technological innovation and environmentally responsible policies.

## **2. Environmental Taxes**

The following is the second form of data from the second research question. The concepts of ecological sustainability (Tomkin & Theis, 2013) was used to analyze this data. The second form of actions to improve ecological sustainability in Stevens' *Before the Flood* is as follows:

### Datum 17



Figure 5.1 Plans for the use of carbon tax. (minute 01:00:02)

Figure 5.1 shows an illustration of a plan to use a carbon tax as a solution to address climate change. Gregory Mankiw explains that a carbon tax is a tax imposed on any activity that produces carbon in the atmosphere. It aims to reduce fossil fuel consumption by increasing its price. An information shows that:

*“By 2060, climate change will cost taxpayers an estimated \$44 trillion USD.”*

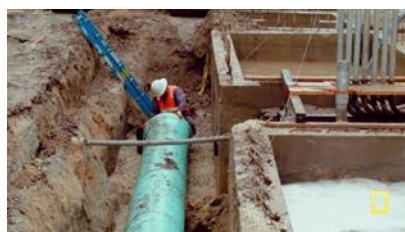
(minute 01:00:55).

The information emphasizing the need for this action. The meaning of the datum illustrates that a carbon tax is an attempt to pressure people to consider environmental costs in their daily decisions, without having to experience the adverse impacts first. This is in line with Tomkin and Theis (2013) concept that environmental taxes are considered a tax on something that causes a negative impact on nature. The carbon tax concept is an interesting plan, where readers can learn about the complexity of addressing environmental problems and the importance of society’s role in driving environment conference policy change.

### 3. Sustainable City

The following is the third form of data from the second research question. The concepts of ecological sustainability (Tomkin & Theis, 2013) was used to analyze this data. The third form of actions to improve ecological sustainability in Stevens' *Before the Flood* is as follows:

#### Datum 18



(1)



(2)

Figure 6.1 Efforts to overcome sea level rise in Miami City. (minute 00:20:55 & 00:21:08)

Figure 6.1 shows that Miami City is taking concrete actions to address sea level rise. The city has two main strategies: raising the roads (1) and installing electric pumps (2). These efforts illustrate Miami City's awareness of the real threats posed by climate change and sea level rise. Philip Levine emphasizes the importance of the issue, stating:

*"We don't have the freedom or time to debate climate change"* (minute 00:20:06 – 00:20:08).

The \$400 million project to elevate streets and install pumps throughout the city demonstrates Miami City's commitment to adapting to environmental change. Philip Levine's statement that:



*“If this city goes underwater, there will be no future”* (minute 00:20:33 – 00:20:35).

The statement was a stark warning of the consequences of not taking immediate action. This is in line with Tomkin and Theis (2013) concept, which states that sustainable cities have attempted to move stormwater away from our constructed areas via gutters, sewers, and artificial conduits. From this datum, readers can understand the complex relationship between urban development and environmental adaptation. The political challenges surrounding climate action, evidenced by disagreements between local officials and state leaders, demonstrate the complex relationship between environmental issues and political ideologies.

## CHAPTER V

### CONCLUSION AND SUGGESTION

After reading and studying the object of research through Stevens' *Before the Flood* utilizing Garrard's (2004) ecocritical approach and ecological sustainability (Tomkin and Theis, 2013). The researcher can finally resolve the research question discussed in this study, by providing a resolution. In this chapter, ideas are also proposed for additional research regarding the ecological apocalypse.

#### A. Conclusion

The first section discusses the form of ecological apocalypse in Stevens' *Before the Flood*. To analyze it, researcher use Garrard's (2004) concept of ecological apocalypse. As a result of the findings, the researcher answers that the forms of ecological apocalypse, namely: climate change, depletion of natural resources, and natural imbalance. The findings of the second research question, the researcher answered that the actions to improve ecological sustainability in Stevens' *Before the Flood*, namely: renewable energy, environmental taxes, and sustainable city. To analyze it, the researcher uses Tomkin and Theis (2013) concept of ecological sustainability.

The *Before the Flood* film shows scenes related to climate change causing damage to nature and how humans can mitigate the effects of climate change. The film makes the issue of climate change the main topic. The problem of climate change in *Before the Flood* is caused by the bad habits of humans starting from excessive mining and deforestation, causing enormous impacts, namely rising sea

levels and air and water pollution. However, humanity has also taken some actions that can improve ecological sustainability, such as using renewable energy, carbon tax, and building and renewing infrastructure.

### **B. Suggestion**

To expand the research by utilizing the object of Stevens' *Before the Flood*, the researcher suggests that other researchers should investigate this literary work in different disciplines. It should be noted that the film *Before the Flood* teaches people to respect and care for nature more. Therefore, caring for nature with genuine love without destroying it is a positive thing, and will benefit all parties. Therefore, for readers who want to know the story in the film *Before the Flood*, they can watch it on Disney+ or Apple TV. The last, researcher recognizes that this ecocritical research has still lacked significant details. Therefore, suggestions and criticisms are highly expected to conduct better research. The researcher hopes that readers can utilize this research to respect and care for nature more.

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## **CURRICULUM VITAE**



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