

An Ecological Reading In Karen Malpede's *Extreme Whether* (2014)

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Abstract

Ecological consciousness is a term that describes how an individual feels about and interacts with nature. By being more ecologically conscious, one can comprehend the effects of one's choices and behaviors regarding nature as well as learn how to predict changes before they happen and take appropriate action against environmental degradation. Climate change is one of the main hazards of this degradation. Climate change drama investigates the devastation people leave for future generations. The current paper aims at exploring the danger of climate change that results from ecological unconsciousness, its reasons as well as its hazardous effects on the human and non-human worlds as revealed in Karen Malpede's *Extreme Whether* (2014). The analysis of the paper is based on the greenhouse effect theory and its impact on ecological and climate changes. Another aim is to show the American society's dichotomies regarding global warming and climate change issues. Additionally, the paper aims at exploring people's different responses to the risks of climate change and how they deal with its hazardous effects in the long run. Moreover, through the critical analysis of the play, the paper intends to explore the role of science in mitigating global warming and climate change. Furthermore, The paper concludes that the characters can substitute fossil fuels with natural resources to generate energy to save the globe.

Keywords: ecological consciousness - climate change - Karen Malpede - *Extreme Whether* - greenhouse gas theory

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Introduction

“Have I not the reason to lament what Man has made of Man" (51).

William Wordsworth ends his poem *Lines Written in Early Spring* (1798) with these two effective lines which reflect his ecological consciousness. Wordsworth's apocalyptic words indicate man's expected behavior toward environment and his responsibility regarding its degradation. It is astonishing that the poet laments man's irresponsible actions in nature more than a hundred years before issues of ecological consciousness, global warming, and climate change have been raised. Defined by V. I. Panov, ecological consciousness is “a reflection of the psyche of a variety of man’s relationship with nature, which mediate its behavior in the ‘natural world,’ and express axiological position of the subject of consciousness in relation to the natural world” (380). Through ecological consciousness, the discernible, moral, and spiritual perspectives of an individual are all in harmony to make a strong bond with all facets of the natural world. In addition, ecological consciousness can help individuals comprehend the world more deeply and discover new strategies for thinking and acting that will benefit the environment and enable them to coexist peacefully with it.

Recently, ecological consciousness and climate change have become prevalent themes in literature and literary studies. The

literary works emphasize the contribution theater makes for the development of a dynamic and innovative environmental movement. Adeline Johns-Putra, a distinguished university professor and an environmental activist, investigates how various ecological issues including the phenomenon of climate change is revealed in literature. In "Climate Change in Literature and Literary Studies," Putra notes that, "the theme of how individuals, especially scientists, must grapple with the public and private dilemmas wrought by climate change has continued to preoccupy dramatists and theater-goers alike" (271). Like Putra, Theresa J. May, an American environmentalist, emphasizes the role of theater in investigating important environmental issues as she notes "community-based environmental issues - including environmental justice concerns have found theater a viable tool through which to promote social change, open dialogue, or protest the status quo" ("Greening" 93). In an age of environmental deterioration, there has been greater interest in plays that discuss the climate change phenomenon. These plays participate in establishing environmental ethics to decrease hazards of climate change that threaten the globe. Climate change drama investigates the inheritance of ecological deterioration people leave for future generations. Therefore, a plethora of plays that explore environmental issues including global warming and climate change has prevailed. These plays include Clare Pollard's *The Weather* (2004), David Rambo's *The Ice Breaker* (2006), Orlando

Gough's *We Turned on the Light* (2006), Andrew Bovell's *When the Rain Stops Falling* (2008), Mike Bartlett's *Earthquakes in London* (2010), and Gordon Dahlquist's *Tomorrow Come Today* (2014), to mention only a few.

Karen Malpede (1945) is a distinguished American playwright, a university professor of theater and environmental studies, and a social justice activist. A prolific writer, Malpede has written a lot of plays like *A Lament for Three Women* (1974), *The End of War* (1976), *A Monster Has Stolen the Sun* (1987), *Blue Heaven* (1992), *Prophecy* (2008), *Another Life* (2011), and *Other Than We* (2019) that investigate ecological, feminist, and social justice issues. In *Extreme Whether* (2014), Malpede brings important environmental issues to the stage as she addresses the effect of global warming and climate change on livelihoods in the U.S. As mentioned by Malpede in the introduction of the play, *Extreme Whether* "is based on the life and work of American scientists, particularly James Hansen, Michael Mann, and Jennifer Francis, plus the research of biologist Tyrone Hayes into the effects on amphibians of the herbicide atrazine, these scientists have been attacked and vilified for their groundbreaking research" (299). *Extreme Whether* is set in a country residence, with characters involved in nature activities and lengthy discussions about matters affecting the environment. The play discusses what we stand to lose when the climate changes and the earth warms.

Moreover, it is a story of hope of how we can stop global warming from taking place and save ourselves from its disastrous effects. In addition, the play investigates ecological consciousness and climate change that affect the whole world as well as human responses to the consequent crises.

Inspired by the ecological consciousness that has spread all over the world and the Climate-Change conference that will soon take place in Egypt, the current paper aims at investigating the climate change issue that results from irresponsible human activities as revealed in Malpede's *Extreme Whether* and its effect on earth and earth's inhabitants. Therefore, scientific theories such as the greenhouse effect theory and its effect on ecological and climate changes will be investigated. Another important aim is to show the American society's dichotomies regarding global warming and climate change issues. On one hand, some people, especially scientists, think that the public policy should be determined by the science of climate change. On the other hand, industry lobbyists believe that if climate change is seriously addressed, economic interests will be threatened because, for them, the economy should continue to be driven by the extraction of fossil fuels. In addition, the paper aims at exploring people's different responses for the risks of climate change and how they deal with its hazardous risks in the long run. Moreover, through the critical analysis of the play, the paper explores the role of

science in mitigating global warming and climate change, and investigates how the characters can substitute fossil fuels with natural renewable resources to generate energy. In so doing, they save the globe from environmental hazards.

Extreme Whether: Theory and Analysis

Set during the summers of 2004 and 2012, *Extreme Whether* displays the struggle of John Bjornson, a NASA climate scientist against his twin sister Jeanne, an energy spokeswoman, and her husband Frank, an industry lobbyist, over the future use of the family land. Jeanne wants to exploit the family land as "there are enormous natural gas deposits underground on this very land" (360). Their conflict exposes the dispute in America over land use, global warming and climate change effects. Rebecca, John's assistant, is a young ice scientist with an important new theory on Arctic Sea ice melting. John and Rebecca struggle with their implications and knowledge, encouraging and supporting each other at the moment of despair in their research. Uncle is an old disabled man on a wheelchair who has been the custodian of John and Jeanne's land over the years. Annie is John's teenage daughter who suffers from Asperger's syndrome, a form of autism. Since the family's urban settlement in New York has been disturbed by environmental and climate changes, they transfer to live in their rustic rural home which Uncle usually maintains.

As a climate scientist, John is exasperated by the natural hazards that threaten earth and its inhabitants as he explains to Rebecca: " natural events are now far beyond our ability to know. That's what your catastrophic ice melt is telling us, along with the tornadoes, hurricanes, droughts, fires and the sea-level rise " (350). According to Rabecca's researches, as a result of global warming and climate change, "the Arctic sea ice is melting at a faster rate than any of us thought" (312). Through studious research, John and Rebecca aim to save the world from climate change risks. They try to use their scientific research to reduce emissions that cause global warming. John and Rebecca object coal business as they consider it the main reason of the current climate conditions. In so doing, they put the public in the limelight about taking action to mitigate climate change and reduce its hazardous impact. Rebecca asks Frank, the industry lobbyist, "How human will you and I be when we're fighting for water to drink, food to eat, when the refugees from the rising oceans appear here, desperate, wanting our shelter, willing to stop at nothing?" (372). Rebecca's words indicate the responsibility mankind has in the deterioration of the environment and its impact on earth's inhabitants.

As Malpede remarks in the introduction of *Extreme Whether*, the issue of global warming and climate change "is enough to stand one's hair on end" (299). With a keen interest in

climate change, John conducts his first research on the effect of CO₂ in the atmosphere in the first part of the play, and it is turned down. However, in the second part of the play, John looks forward to developing his research once more. The theory of the greenhouse effect on climate change is related to John's research findings and explain Rebecca's statistics on the melting of the Arctic ice "You tell responsible men that greenhouse gas emissions will destroy the planet on which they live, but government policy can save us, just in time. They blow their noses. They pick at their ears. . . We have a sacred duty. . . to make life even in the face of death" (311). John exposes the effect increasing greenhouse gas emissions might have on the Arctic ice sheets that cool the seas and the hazardous impact of ice melting on the globe.

Interrelated to climate change is the greenhouse effect theory which attempts to explain the impact of global warming on people and their life on earth. Gilbert Plass (1920), a Canadian physicist, is credited with discovering the greenhouse effect theory, the backbone of the science of climate change. The theory is also known as the Carbon Dioxide theory of climate change. In 1980s, the greenhouse effect theory was developed by various scientific and technical experts from different parts of the world seeking to explain climate change associated with releasing harmful gases into the atmosphere. The greenhouse theory of

climate change argues that the earth's atmosphere acts like a greenhouse and traps heat, making the earth warm. Several tests and research by scientists seem to agree with the arguments presented in the greenhouse theory of climate change. With increased technology and emission of CO₂ into the atmosphere, temperatures of the world have risen. Temperature increase in the world is directly proportional to an increase in gas emissions into the atmosphere. Historical evidence showing a change in climate with an increase in technology supports this theory (Keenan et al). In *Extreme Weather*, John asserts that the government's energy policy "is exactly like the invasion of Iraq. Weapons of mass destruction, only, in this case, such weapons do exist. They are greenhouse gasses" (324). Deforestation contributes majorly to climate change as John notes that the trees that have been cut down on the hill increase carbon dioxide in the atmosphere and rise temperatures that have led to ice melting in the Northern pole.

According to the greenhouse theory of climate change, the expansion of ocean waters is due to the melting of polar ice resulting from increased temperatures. In *Extreme Weather*, as Rebecca notes, satellite pictures show that "we have lost 2 million square kilometers of ice" (333). Undoubtedly, human activities are the primary causes of ecological and climate changes. According to John, "the climate we've been lucky enough to live in undisturbed for the past 10,000 years, while civilization

evolved . . . is a thing of a past. And we are almost certainly the cause. Man-made, anthropomorphic climate change is almost certainly likely to destroy the planet on which we live" (337). Human activities such as burning fossil fuels like natural gas, coal, and oil releases CO2 into the atmosphere which, in Uncle's words, becomes a "slim slice of air that surrounds the earth. . . no thicker from space than tissue paper" (370). Consequently, inhabitants of the earth are already experiencing the impacts of climate change, be it humans or animals. Climate change has resulted in food insecurities, hurricanes, winter storms, and floods. Due to the increase in sea water levels, coastal communities are at the risk of floods and coastline erosion (Park et al 117-118). As a result of the extreme weather, John remarks, "Our health, homes and food supplies are at stake. Across the globe. Nowhere is safe. Mass extinctions, massive refugee populations" (362).

In addition, *Extreme Weather* explores the theory of ecological change, which, according to Kareiva and Marvier, originates from three perspectives; attempts to manage fisheries and wildlife, investigations of the "balance of nature," and explorations of patterns in nature (967). Ecological changes are caused by species colonization, succession, disturbance, and ecosystem development. Sudden climate changes and natural disasters cause such changes. When ecosystem changes occur,

species are forced to develop adaptive mechanisms to cope with such changes, which mainly result from climatic changes. These changes impact other parts of the ecosystem and eventually lead to a new equilibrium. Ecological and climatic changes go hand in hand and are dependent on the occurrence of each other (Kareiva and Marvier 968). According to the theory of ecological change, deforestation and fragmentation of species result in changes in population size and genetic structure of species. Ecological change theory predicts that small and isolated populations have a higher probability of declining and becoming extinct compared to bigger populations of species. Climate changes expose species to a "survival for the fittest" situation, and only species with the ability to adapt and mutate faster survive. Additionally, ecological changes result in genetic mutation in species, both advantageous and disadvantageous mutations (Rocque et al).

Ecological changes in Malpede's *Extreme Whether* have resulted in the genetic mutation of animal species, with a decrease in the population of small and isolated species in the play. For instance, John and Jeannie compare the number of animals inhabiting their land now to when they were young. The pool on the lake used to have fish but right now, it's only frogs that roam the pool. Uncle, the custodian of the family land, laments this environmental loss "I hear cries for help. The fish in the sea, the birds on the wing, the frogs are gasping for breath" (340).

Additionally, ecological changes, that occurred as a result of man's irresponsible actions, are evident in the play when Sniffley, Annie's frog, is exposed to "unnatural forces," "deformed with a total of six uneven legs," and "feminized, made into a hermaphrodite by the herbicide atrazine that got by groundwater into his pond. . . and atrazine can do this to 'real men,' lower their testosterone levels" (325). Sniffley becomes an abnormal amphibian for being subject to extreme environmental changes that "he" cannot adapt to. According to Junhua Hu et al, the frog's altered genes result from man-made changes in the environment (955). Moreover, the disadvantageous mutation extends to humankind as Annie, John's daughter, becomes "intersex," "a gender-challenged girl, or as [she] prefer[s] a birl" (325). This mutation, in John's words, is the result of "the chaos humankind has caused" (350). In *Extreme Whether*, Malpede, in Theresa J. May's words, "exposes the mythic underpinnings of unsustainable resource extraction and human exploitation, that complicates pat environmental rhetoric, and illuminates a nuanced and complex interrelatedness with the more-than-human [natural] world" ("Beyond Bambi" 104).

According to McNeeley and Lazrus, the cultural theory of risk for climate change adaptation argues that individuals and cultural groups within a society respond to climate change according to their beliefs, norms, and cultural values. This theory

suggests that some cultures, especially in developed countries like United States of America, are more likely to take adaptive measures when exposed to climate change, while others tend to ignore the risks. Additionally, the theory suggests that climate change adaptation strategies must be designed to fit the targeted cultures' specific values, norms, and beliefs (510). Under the assumptions of this theory, groups and individuals in society make decisions about how to prepare and respond to climate change based on their cultural values. Factors that determine people's cultural response to climate change include; whether they believe climate change is real, what they foresee about the consequences, and what they perceive acceptable as the level of risk. The cultural theory of risk and climate change adaptation can help explain why some communities are more prepared to take action against climate change than others. This theory is guided by behaviors instilled by people from their cultures. For instance, when we compare climate change response in America, Europe, Asia, and Africa, we find out that Europe and America are serious with climate change responsiveness compared to some parts of Asia and Africa who wait upon America and Europe to dictate what course of action to be taken (McNeeley and Lazrus 512).

In *Extreme Whether*, when characters are exposed to climate change in big cities like New York, they react immediately by relocating to their family land where there is “a

simple, rustic house, surrounded by meadows and trees and a hill from which you can see the sea" (301). Concerned with climate change, John, as a NASA scientist, responds immediately to climate change by starting to work on his research about the effects of releasing greenhouse gases into the atmosphere. Additionally, he explains to Rebecca why the ice in the Arctic Sea is melting and its effect on the environment in the long run. Moreover, culture-guided adaptation sequence is evident in the play when Rebecca and John are determined to finish their research even after being threatened by Frank and Jeanne. When Rebecca insists on making a press conference to expose the government's responsibility in climate change hazards, John notes that "[t]he press conference is just the start. I'll go on a national speaking tour. Hell, I'll chain myself to the White House fence. I'll yell until people wake up. You can chain yourself to me. I'll resign my post. I'll sue the government if I have to. That's the only rational thing left to do. We've truth on our side" (382).

It is worthy to note that John and Rebecca's hard work to mitigate global warming and climate change juxtaposes Jeanne and Frank's land exploitation and industrial expectations. While John and Rebecca employ their scientific research in changing human behavior to secure a better future for earth and its inhabitants, Jeanne and her husband, as industry lobbyists, deny the scientific climate-change fact and are concerned with

industries based on fossil fuels to achieve economic and political interests as well as industry profits. Moreover, Jeanne thinks that John's prognosis about hazards of climate change "is vastly premature, even alarmist, and would cause enormous economic damage" (322). Their conflict represents the sharply distinguished perspectives in the American society over the issue of climate change. Government officials and climate change deniers consider John "dangerous to humankind," and his "malicious agenda" would drive "millions of people into poverty" (342). On the contrary, John thinks that poverty is "flood, drought, when you can't breathe the air, when you can no longer grow crops, when you have to abandon your land" (343). Though fiercely attacked, and his climate change chapter has been removed from the annual report of the agency, John devotes himself to pure research to mitigate climate change and save better environmental conditions for future generations.

Like John and Rebecca, Uncle and Annie are protectors of nature as they do their best to alleviate climate change hazards, and they fiercely react against exploitation of land and environmental loss. Throughout the play, Uncle, the wise protector of the land, emphasizes man's role in protecting the environment: "We sensed our place in the grand design: to marvel at the large and small, the sky, the mountain and the honey bee, the planet beneath our feet" (328). Instead of using fossil fuel, he

suggests renewable sources of energy: "Solar, wind and wave: these alone endure forever and ever, sufficient to our needs and those who come after" (365). In "Climate Change Mitigation Potential of Wind Energy," Rebecca J. Barthelmie and Sara C. Pryor state that "wind energy can substantially reduce emissions of greenhouse gases at the national and global scale and measurably reduce the amount of temperature increase". Moreover, Annie helps to reduce greenhouse gas emissions through her food choices: "I am consuming only raw food. Vegetables, nuts, and fruit which can be picked and the seeds shit. . . so the source is replenished, the garden grows up again" (325). According to United Nations reports, "eating more vegetables, fruits, whole grains, legumes, nuts, and seeds, and less meat and dairy, can significantly lower your environmental impact. Producing plant-based foods generally results in fewer greenhouse gas emissions and requires less energy, land, and water". In addition, with Uncle's assistance, Annie works hard to dig ponds to save frogs from atrazine that penetrates into water and causes mutation of amphibians and their consequent death.

Sniffley's existence emphasizes the connection between human and non-human worlds as Annie remarks: "Sniffley was the most like me. . . he and I were kindred spirits. As long as Sniffley lived, I was never alone" (363). Sniffley and Annie have a close interspecies connection; Annie, as a self-accepted "birl,"

challenges rigid social constructs of the natural world in the same way as Sniffley does. When Sniffley and Annie communicate, socially constructed distinctions between them vanish to reveal a connection that is stronger than what we are typically permitted to experience in the various stages of our daily lives. As Malpede notes, "we are an American family; what happens to the least of us, a frog in this case, is likely to happen to us all" (299). Moreover, Sniffley's death and funeral imply the close link between human and non-human worlds that are both victimized by man-made environmental degradation.

Set in the summer of 2012, the play's second act starts with the catastrophic scientific news of the inevitable breakup of the enormous west arctic ice sheet assuming ongoing high carbon emissions driven by oil, gas, and coal. In "A New Critical Climate," Adeline Johns-Putra notes that there is "a general consensus on the existence of climate change that is based on an agglomerate of evidence, including measurements of rapidly rising sea levels, shrinking ice sheets, diminishing Arctic ice thickness, accelerating global temperatures on both land and sea, and increasing ocean acidification" (7). John and Rebecca are greatly shaken by the terrible news as Rebecca notes: "No one was prepared for this summer of 2012. The unprecedented, precipitous dive. More than half of the ice in the Arctic is gone. . . It's a death spiral" (346). On the contrary, Arctic ice melting for

Jeanne and Frank is a real chance for constituting industrial projects: "just when we need it most, the Arctic oil is becoming available, good things for the United States, for the economy and for our allies" (359). Arctic ice melting results in terrible natural events such as sea-level rise, hurricanes, tornadoes, and droughts that are beyond man's control.

As aforementioned, the phenomenon of climate change has its impact on people and their livelihoods. In *Extreme Weather*, climate change has reduced the food supply. When Jeanne is offered cereals because there is no other kind of food, she says that cereals are made for frogs. As a matter of fact, climate change has disrupted normalcy in the world (Weiskopf et al). For instance, the play is filled with tension as people do not know what more could befall them, yet there is little that they can do to protect themselves. In addition, in "Climate Change in Literature and Literary Studies" Adeline Johns Putra states that climate-change-themed theater "usually refers to a disastrous climatic event. . . [and] often deals with the psychological implications of climate change, from the ethical and political challenges faced by climate scientists to the anxieties experienced by scientists and nonscientists alike as they consider the impact on their loved ones" (270-271). In *Extreme Weather*, the "disastrous climatic event" (Arctic ice melting) and climate change phenomenon result in psychological tension. Extremely frustrated, John picks a rifle

and refuses to put it down; he even ends up killing a deer. John suffers greatly from environmental hazards as his wife died from a fast-growing cancer, and his daughter has become an autistic intersex "birl."

Like scientists, to use Putra's term, "nonscientists" experience anxieties because of climate change. Due to changes in the climate of New York City, all economic activities have become at stake. The characters leave their places of work and go to converge in the country which is safer compared to big cities that may be struck by hurricanes or other environmental hazards. As for the scientists John and Rebecca, they work on their projects from home hoping that they will be able to solve the current climate change plight and present their ideas to the board of climate change research. They invest time, resources and money but there is no guarantee of return of their investments. John is quite infuriated because "The White House has stricken the words 'to know and protect the home planet' from the agency statement, they have actually done that. Evidently, the earth does not matter anymore, it is, now, all about getting to Mars" (319).

In *Extreme Whether*, Malpede explores the vital role of science in human life. Through scientific research, John and Rebecca look forward to creating a better environment for human existence. John asserts that "[s]cience is not a matter of opinion, or of political affiliations. I am not some wild speculator who

somehow got on the government payroll. My word has been verified by scientists around the world" (319). When John's research proposal on climate change is rejected, he comes home devastated, demotivated, and ready to quit. Rebecca reminds him that he is researching to help the world, not just for recognition. In addition, *Extreme Whether* highlights the role of women in scientific research. As an ice scientist, Rebecca undertakes and researches on the rate of ice melting in the Arctic Sea. Additionally, she fiercely objects the construction of Jeanne's mining firm because it will have adverse effects on the environment. Role of women in research is further emphasized in the play when Rebecca and John work to modify their research together. Rebecca is the one who motivates John to continue with his presentation in the second part of the play. Recent research, according to Namrata Gupta, shows increase in the number of women venturing into the science field.

As climate change deniers and industry lobbyists, Frank and Jeanne attacked John and Rebecca's scientific research to mitigate climate change and global warming. Additionally, Frank, with the help of Jeanne, challenges John's research and plans to set up a mining firm in the family land: "The drills are coming up here tomorrow. You've got no choice but to swallow it. You're going to have to swallow it all" (380). Power has been used throughout by the government and cartels to pollute the

environment while hiding behind charity work to benefit humanity (Svarstad et al). As a public spokeswoman, Jeanne remarks "Industry can and will be good stewards. As we exploit all possible sources of domestic oil, clean coal and natural gas, we pledge to be environmentally responsible" (354). Moreover, Jeanne misuses her public relations power to blackmail Rebecca to drop her research about Artic Sea ice melting. Therefore, she plans to release a public speech about Rebecca's prior mistakes threatening her to stop her environmental campaign or lose her job.

Furthermore, in *Extreme Whether*, Malpede exposes the ecological unconsciousness of people who show a flagrant indifference for the state of the planet. In the play, desperate scientists are witnessing how industry lobbyists are aggressively undermining their study models and projections. At the beginning of act II, "the environmental situation has continued to worsen; no meaningful public action has been taken" (346). Therefore, John is quite frustrated and is about to give up on the current scientific research as he remarks "all of the systems we have studied so carefully over the years, all our graphs and the charts, our satellites, the models, observations, the theories no longer reflect anything but a world that has vanished on our watch" (350). John's desperate words imply the effect ecological and climate change would have on the world and its occupants. Additionally,

as pointed out by Uncle, weather patterns have been disrupted. The pool near the hill used to be lively, but animals who used to habit the pool have died, and the remaining ones are deformed like Sniffley, Annie's frog. In addition, extinction of plants and animal species has taken place. Uncle laments the past days as he says to Rebecca and Annie: "Forests, the sky, waterfall, meadows down the shore. Fish jumping, clouds dipping; this is the center of creation" (302). Likewise, John recalls how the hill used to have indigenous trees and wild animals when he and Jeanne were young, but climate change has made them extinct, making the hill less interesting.

It is worthy to note that at the play's very moment of despair when John is quite desperate and at the verge of giving up, there appears a glimmering hope for changing the current situation by mitigating climate change and global warming. In the remaining scenes of the play, Uncle, as a protector of land and preserver of nature, rises from the wheelchair, and amazingly regains the use of his legs because he has work to accomplish. He has to work hard on the family land, turn wind turbines to bring about a renewable-energy revolution. It seems that nature's rejuvenation needs a miracle like Uncle's revival. Hope for a clean environment is inspired by Uncle's miraculous recovery. He suggests some coping techniques for climate and ecological changes that include wind turbines, sea waves, solar panels,

developing famine-resistant crops and afforestation to manage CO2 emissions into the atmosphere. In the epilogue of the play which is set in the near future, the scene of extreme weather and environmental devastation has changed into natural reformation; sounds of birds are heard, wind begins to blow, wind turbines begin to turn, and "the multifold sounds of music of nature begin once again to intensify" (385). At the end of the play, the beauty of the hill has been restored by changing human activities as well as man's awareness of climate change and its impact on human and non-human worlds.

Conclusion

In conclusion, the current paper has shown that climate change in the play is attributed to people's actions on the environment including deforestation, exploitation of land, and burning fossil fuels such as natural gas, coal and oil that release CO2 and greenhouse gas into the atmosphere. Consequently, they cause global warming and climate change in the long run. John and Rebecca's satellite pictures prove that two million square kilometers of ice in the Arctic Sea have been already melted as a result of climate change. In addition, their scientific research proves that the Arctic will be ice-free in the near future if the climate continues to change. Moreover, the paper has found that ecological and climate changes that are resulted from man's irresponsible activities as a result of lack of ecological

consciousness have disastrous impacts on the human and non-human worlds alike. Ecological and climate changes lead to food supply shortage, extinction of minority species, a decrease in the number of majority species, and human and non-human mutations to adapt the new conditions. Annie, John's teenage autistic daughter, has become an intersex, or a "birl," as she prefers. Likewise, her frog Sniffley becomes an abnormal feminized amphibian that is deformed with a total of six uneven legs.

Furthermore, the paper has shown the division of the American society into two dichotomies regarding global warming and climate change issues that is represented by the twin siblings John and Jeanne. On one hand, some people, especially scientists, think that the public policy should be determined by the science of climate change showing its hazardous impact on earth and its inhabitants. Those people are ecologically conscious and are more motivated to fight for the environment's welfare. On the other hand, industry lobbyists are climate change deniers who believe that if climate change is seriously addressed, economic interests will be threatened because, for them, the economy should continue to be driven by the extraction of fossil fuels. In addition, the paper explores people's different responses for the risks of climate change and how they deal with climate change and global warming in the long run. People in developed countries, like United States of America, are more likely to take adaptive measures when exposed to climate change, while others tend to

ignore the risks. In the American society, as revealed in *Extreme Whether*, people's response to climate change and its risks is based on their culture, beliefs, and interests. For example, John and Rebecca's response to global warming and climate change differs from Frank and Jeanne's.

Additionally, the analysis of the play has explored the vital role science plays in mitigating ecological and climate changes and relieving their hazards. Though they are fiercely attacked by the government, industry lobbyists and climate change deniers, John and Rebecca do not give up their mission. They apply their expertise to find out the causes of global warming, climate change, and ice melting in the Arctic Sea. Moreover, through critical analysis of the play, the paper has shown that mitigation of climate change can be brought about by a renewable-energy revolution. Fossil fuels should be substituted by solar panels, wind turbines, and sea waves to generate energy. In addition, people must be ecologically conscious and produce crops that can withstand extreme weather conditions to avoid famines. Uncle, the custodian of land and preserver of nature, rises from his wheelchair and regains his mobility to undertake the reformation. In the epilogue of the play that is set in the near future, the scene of extreme weather and environmental devastation has changed into natural rejuvenation that is symbolized by Uncle's miraculous revival.

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قراءة بيئية لمسرحية "إذا ما كان مفرطاً" للكاتبة كارين مالييد ٢٠١٤

ملخص

الوعي البيئي هو مصطلح يصف كيفية شعور الفرد نحو الطبيعة وكيفية تفاعلهم معها. بكونه واعياً بيئياً يستطيع الإنسان ان يدرك اثار اختياراته وسلوكياته علي الطبيعة ويستطيع كذلك ان يتعلم كيف يتنبأ بالتغيرات قبل حدوثها و بذلك يستطيع ان يتخذ الإجراءات المناسبة ضد التدهور البيئي. ويعتبر التغير المناخي واحدا من المخاطر الرئيسية لهذا التدهور. وتبحث دراما تغير المناخ في الدمار الذي يتركه الناس للأجيال القادمة. وتهدف الورقة الحالية الى اكتشاف ظاهرة تغير المناخ التي تنتج عن عدم الوعي البيئي بالإضافة الى اكتشاف اسبابها واثارها الخطيرة على العالم البشري وغير البشري كما هو منعكس في مسرحية كارين مالييد " ما اذا كان مفرطاً" (٢٠١٤). ويعتمد تحليل الورقة البحثية على نظرية تأثير الغازات الدفينة وتأثيرها على التغيرات البيئية والمناخية. وهدف اخر هو اظهار انقسامات المجتمع الامريكي فيما يتعلق بقضايا الاحتباس الحراري و التغير المناخي. بالإضافة الى ذلك تهدف الورقة البحثية الى استكشاف استجابات الناس المختلفة لمخاطر تغير المناخ وكيف يتعامل الناس من خلفيات ثقافية مختلفة مع تغير المناخ والاحتباس الحراري علي المدى الطويل. وعلاوة علي ذلك تهدف الورقة البحثية من خلال التحليل الدقيق للمسرحية الي استكشاف دور العلم في التخفيف من ظاهرة الاحتباس الحراري و تغير المناخ. واستنتجت الورقة البحثية كيف يمكن للناس من خلال وعيهم البيئي ان يستبدلوا الوقود الحفري بالموارد الطبيعية لتوليد الطاقة لإنقاذ العالم.

الكلمات المفتاحية: الوعي البيئي - التغير المناخي - كارين ما لييد - "إذا ما كان مفرطاً" - نظرية الغازات الدفينة