International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Climate Crisis and Institutional Inertia: An Ecocritical Reading of in Kim Stanley Robinson's Forty Signs of Rain

I. Latha[1], Dr. A. Sheeba Princess[2]

[1]Research Scholar, English, Bishop Heber College, Affiliated to Bharathidasan University
[2]Associate Professor, English, Bishop Heber College, Affiliated to Bharathidasan University

Abstract
From the period of time before civilization to the present, human's relationship with nature has been constantly changing; he was a steward, a partner, a gardener and now a destroyer. Humans have exploited the natural resources and are now pushed into a de-familiarised world of acute global warming, melting poles, mass extinction of species and rising sea levels. These human induced global environmental changes have marked the beginning of the Anthropocene, a new period in geologic time scale. It's a period in which human activities have a dominant influence on climate and environment. To survive the consequence of climate change it is important to practice sustainability. Environmental sustainability advocates on the need to protect the present without compromising the future.
Kim Stanley Robinson, American science fiction writer and environmental activists in his novel *Forty Signs of Rain* portrays a world after human induced climate change. He records the vulnerability of the environment and provides alternatives to survive the climate change in the fictional world based on real time data. The paper aims to evaluate the effectiveness of governmental policies and regulation in addressing the environmental vulnerability caused by climate change in Kim Stanley Robinson's *Forty Signs of Rain*.

Keywords: Climate Change, Anthropocene, Environmental Vulnerability,

Introduction

Since the beginning of time, nature and humans have shared a kinship that is rooted in mutual respect, understanding and a sense of responsibility towards each other. This mutual interdependence is the source of balance in the ecosystem. As time goes by man has started to exploit nature for his own needs and disturbed the balance in the ecosystem and made the environment vulnerable. Environmental vulnerability can be addressed by governmental policies through proactive planning, resource allocation, implementing and enforcing strict regulations. To protect the communities and ecosystem it is important to implement policies that are adaptive and responsive to changing environmental conditions.

[1]* **Research Scholar**, Department of English, Bishop Heber College(Affiliated to Bharathidasan University), Trichy
[2] ****Associate Professor**, Department of English, Bishop Heber College((Affiliated to Bharathidasan University), Trich

Climate change poses a significant threat to the planet, harming ecosystems, economies and human societies. Addressing this global change requires comprehensive governmental policies and regulations. To create awareness amongst the readers significant authors like Margaret Atwood, Kim Stanley Robinson, J.G. Ballard introduced a new genre in literature, climate-fiction, a term coined by Dan Bloom. It is a strand of contemporary novels that engages with climate change. These narratives explore environmental vulnerability and shed light on the consequences of anthropogenic climate disruption and offer glimpses of potential futures. It confronts the planet's vulnerability and collective human response to this existential challenge.

Kim Stanley Robinson's novels deal with challenges of the 21st century, and his texts often explore ecological, social, political, and cultural issues. Robinson's climate trilogy ranks among his most important works. The trilogy acquired the informal name of the *Science in the Capital* and it is composed of three novels: Forty *Signs of Rain* (2004), *Fifty Degrees Below* (2005), and *Sixty Days and Counting* (2007).

Forty Signs of Rain, the first book in Science in the Capital trilogy, revolves around three main plots; the work of scientists studying climate change and its potential consequences, the politics and policies surrounding the environmental crisis and the challenges faced by the characters by these changes. It explores the themes related to climate change and its potential consequences. In the novel the scientists Anna Quibler, Frank Vanderwal and the employees of National Science Foundation (NSF) struggle with the over mounting evidence of global warming and the potential catastrophic events that may occur. Political decision makers like Senator Phil Chase, his advisor Charlie Quibler and others try to work a plan to save the world and try to decide to implement certain governmental policies that can benefit both nature and the citizens of the world. Climate change has left people homeless, jobless and has robbed them of their basic rights. The novel portrays climate policy in action, highlighting both the potential and limitations of governmental efforts to address climate change.

This paper aims to evaluate the effectiveness of governmental policies and regulation in addressing the environmental vulnerability caused by climate change in Kim Stanley Robinson's *Forty Signs of Rain*.

Climate Crisis and Institutional Inertia

Ecocriticism provides the tools to interrogate how literature reflects and challenges our relationships with the environment. As Scott Slovic argues, "Ecocriticism encourages us to see how literary texts imagine responses to environmental threats that governmental structures sometimes ignore or mishandle" (Slovic 114). The genre of climate fiction thus makes the abstract or distant crises vivid and personal.

In *Forty Signs of Rain* the primary focus of the policies and regulations are centered on mitigating the impacts of climate change. These goals include reducing greenhouse gas emissions, to clean energy sources and addressing immediate climate crises, such as flooding in the Washington D.C. The fictional world of Robinson aligns with the current reality as Robinson's primary goals support the global climate mitigation and adaptation agenda by emphasizing the importance of reducing emissions, which is a cornerstone of international climate agreements like the Paris Agreement. Addressing immediate climate impacts is in line with the need for adaptation measures to enhance resilience against climate change effects.

Institutional inertia refers to the resistance of established systems like governments, agencies and organizations to change in the face of crisis. According to Newell, "institutions tend to perpetuate the status quo, even as the evidence for necessary transformation mounts" (Newell 54). Bureaucratic

complexity, the influence of vested interests, and policy path-dependence are key sources of inertia which can hamper meaningful governmental action. The novel illustrates that policy implementation is a complex process. While there are efforts to implement climate policies, they face significant challenges. These challenges include political resistance, bureaucratic hurdles, and skepticism from various stakeholders. Some characters and political figures in the novel oppose or downplay the urgency of climate action due to economic interests, political ideology, or short-term gains.

In Robinson's fictional world, the president and his advisors refused to accept climate change as a problem, the government officials in the fictional world are unaware of the climatic conditions and are not ready to listen to the genuine advisors like activists and scientists. Power politics disrupts not just the peace in the economy but also the ecosystem.

In an impromptu meeting with the president and his scientific advisor, Dr Zacharius Strengloft, Charlie Quibler environmental activist and climatic advisor to Phil the senator on climate change and mitigation, finds himself defending the effectiveness of measurements by ecological footprint and of agreeing to the precautionary principle against Strengloft's accusation that 'those concepts are not good science' (143). Strengloft and the president inconsistently emphasize both debate and appeals to 'good' science in order to maintain the current system of carbon use that underpins the American economy. In defense of his views, Strengloft suggests that '[y]ou need a diversity of opinions to get good advice' (144) - a statement that the administration's actual practice belies. Strengloft's appointment as the president's scientific advisor reflects the administration's desire to replace the previous advisor precisely to eliminate debate; his predecessor's view is that 'global warming might be real and not only that, amenable to human mitigations' (145). In response to Charlie's assessment of the widespread agreement regarding climate change, Strengloft counters with the circumlocution [w]we've agreed that there is general agreement that the observed warming is real' (148), and he dismisses these indexes by comparing them to less conventional measures of a country's success: '[n]ext you'll be wanting us to use Bhutan's Gross Domestic Happiness' (148)

The Political and Bureaucratic Struggle

In the real world, political resistance to climate policies is a formidable and recurrent challenge. One significant source of resistance comes from industries deeply rooted in fossil fuel production and consumption. These industries wield considerable economic and political influence, making them reluctant to embrace changes that could undermine their profitability. And also a group of people deny the existence of climate change or downplay its severity, often influenced by misinformation or ideological beliefs. Such denial creates a divisive atmosphere that hampers collective action. Critics argue that severe climate regulations might lead to job losses or economic upheaval, heightening the reluctance of policymakers to adopt more ambitious climate measures. As Geels et al. contend, "Governments and policy-makers are slow to abandon established economic frameworks, even when mounting climate evidence makes business-as-usual untenable" (Geels et al. 601). Similarly, Robinson's narrative structure itself reflects these delays by depicting extended periods of political deliberation followed by sudden environmental catastrophe. This literary technique mirrors real-world patterns where gradual policy discussions are interrupted by climate emergencies that demand immediate response. Furthermore, the novel's focus on the vulnerable island nation of Khembalung parallels scholarly concerns about environmental justice and unequal climate impacts. This parallel reinforces how institutional inertia

disproportionately affects marginalized communities who lack political power to demand rapid policy changes.

In *Forty Signs of Rain*, the novel underscores the significant bureaucratic obstacles that hinder the expeditious implementation of climate policies. It vividly portrays the mire of bureaucratic red tape, where layers of administrative procedures and regulations often complicate and delay climate-related projects. Frank Vanderwal, one of the scientists in NSF tries to convince the administrative officers to allot more funds to support basic scientific research. "The world is in big trouble and NSF is one of the few organizations on Earth that could actually help get it out of trouble, and yet it's not. It should be charting worldwide scientific policy and forcing certain kinds of climate mitigation and biosphere management, insisting on them as emergency necessities…" (Robinson 190). Conflicting regulations add to the complexity, making it challenging for policymakers to streamline efforts. Institutional inertia, a reluctance to change within established government structures, also plays a crucial role. This inertia can lead to resistance against adopting innovative climate solutions and maintaining the status quo, even in the face of urgent environmental challenges. The novel's depiction of the slow and often convoluted approval processes for climate initiatives mirrors the real-world bureaucratic challenges that hinder timely responses to environmental crises. By highlighting these delays, Robinson underscores the human cost of inaction and calls attention to the pressing need for more responsive and adaptable administrative systems capable of translating urgency into meaningful policy.

Intertwining of Science, Politics and Activism

The novel also illustrates the interplay of various interests, including corporate interests, scientific interests, and public interests. These different groups often have conflicting priorities, making it challenging to arrive at consensus on climate policy. One prominent example of this interplay involves the character Frank Vanderwall, a dedicated scientist working in the National Science Foundation. He pushes for more aggressive climate policies based on scientific evidence and urgency. However, he faces resistance from politicians and government officials who prioritize corporate interests, particularly those tied to the fossil fuel industry. These industries resist stringent climate regulations due to concerns about their economic bottom line, reflecting the tension between corporate interests and scientific imperatives. Another layer of conflict arises from public interests and activism. Environmental activists and concerned citizens, such as Leo Mulhouse rally for stronger climate action. Their demands for immediate change often clash with the cautious approach favored by policymakers influenced by corporate lobbying. This divide showcases the challenge of balancing the urgency of public interests with the intricacies of policy formulation. The novel highlights how these conflicting interests hinder consensus on climate policy. The struggle to align corporate, scientific, and public interests underscores the complexity of decision-making in the face of climate change. It portrays a realistic picture of the real-world challenge of finding common ground among stakeholders with divergent priorities, making it challenging to enact swift and effective climate policies.

Throughout the novel, there is a recurring debate surrounding a proposed carbon tax. While some characters, like Frank, acknowledge the importance of such a tax as a means to reduce greenhouse gas emissions, others express apprehension about its impact on businesses and the economy. They argue that imposing a carbon tax could lead to job losses in industries heavily reliant on fossil fuels and disrupt economic stability. This tension between environmental protection and economic considerations reflects the real-world dilemma faced by policymakers and societies at large. It mirrors the challenges of finding

a balance between transitioning to a sustainable, low-carbon economy and mitigating economic disruptions. The novel raises questions about how to address climate change without causing undue harm to economic livelihoods, a dilemma that continues to be a topic of debate in contemporary climate policy discussions.

Embracing the Climatic Challenge

In *Forty Signs of Rain* Frank initiates to build a team that helps mitigate climate change. He brought in five possible solutions for NSF to make a broader impact on people. "One. we have to knit it all together'. He wrote Synergies at NSF"(288). To bring in 'stimulating synergistic efforts' that range across the disciplines to work on the problems. "2. You should be looking for immediately relevant applications coming out of the basic research funded by the foundation".(288) he proposed a permanent and an in-house innovation and policy team to bring in more innovative ideas to help the environment. "Third, you should commission work that you think needs to be done…You Can't be passive anymore"(288) instead of waiting for the proposals to come Frank suggested to go find the potential young researchers and help fund them. "Fourth, you should assign up to fifty per cent of NSF's budget every year to the biggest outstanding problem you can identify, in this case catastrophic climate change, and direct the scientific community to attack and solve it"(288). He wanted both the public and private sector to come forward in cleaning up the damages that they have caused together. "Fifth, you should make more efforts to increase the power of science in policy decisions everywhere" (299). Frank wanted to form an organization of all scientific bodies on earth into one, like a UN of scientific organizations which could work together in times of crisis and collectively take actions for the sake of all future generations of humanity. These plans were taken into consideration in the third book of the trilogy *Sixty Days and Counting*.

Towards the end of the novel three days of heavy rainfall, storms which lead to flash floods disrupt the city's peace. Half the city gets drowned, Khembalung a Tibetan city goes completely under water and the National Mall of Washington DC submerges underwater and is transformed to a temporary lake by the encroaching sea. The Potomac River overflows its banks inundating neighborhoods, government buildings and critical infrastructures. "Constitution Avenue looks like the Grand Canal in Venice"(Robinson 361). The coastal area becomes increasingly uninhabitable due to flooding and erosion and residents are forced to leave their homes. These climate refugees seek shelter and safety which leads to population displacement and social upheaval. The submergence of critical government offices, businesses, and transportation systems wreaks havoc in the city's economy.

Fiction Reflecting Reality

Real-world policy implementation is often fraught with bureaucratic hurdles, political inertia, and short-term priorities that can impede the swift and comprehensive action required. Renewable energy technologies have advanced, and cities worldwide are taking steps to reduce emissions and increase resilience. The instances of extreme weather events in *Forty Signs of Rain* demonstrate the vulnerability of urban areas to the changing climate. They emphasize the need for comprehensive urban planning and infrastructure adaptation to mitigate the disruptive effects of climate-related weather events. Moreover, the strain on emergency response systems highlights the urgency of preparedness and response strategies in the face of increasing climate-induced disasters. These instances also highlight the broader implications for urban resilience and the critical role of climate adaptation measures in ensuring the sustainability of cities in a world marked by escalating environmental challenges.

Conclusion:

To conclude, the novel exposes the challenges of enacting meaningful climate policies in the face of political inertia. Characters within the story grapple with the reluctance of policymakers to take bold and immediate action on climate change. Political interests, lobbying, and short-term thinking of the characters hinder progress. The novel depicts the struggles of scientists and policymakers attempting to convince government officials of the urgency of climate action. They face resistance and skepticism from politicians focused on other priorities.

The futuristic world created by Robinson is clearly and plausibly connected to the contemporary real world. He imagines a future in which humans survive the man-made crisis by taking alternative steps. This includes changing the assumptions, institutions and practices that retard a movement towards sustainability. Climate change often evokes catastrophic images of the future that might be avoided if alternatives to current polluting practices are established. The extreme weather event imagined in the novel threatens the integrity of the environment and it is an image of the future that insistently presses upon the now and calls for immediate action to mitigate these events. *Forty Signs of Rain* presents a detailed fictional assessment of the actions that can save the imagined future. Robinson envisions an unreliable future created by the people of the present and showcases the impending doom if humans don't change their course of action.There is still a hope for a better future as the urgency of the climate crisis has encouraged innovation, international climate agreements, and grassroots movements demanding change. The lessons drawn from the novel inform real-world discussions and actions aimed at combating climate change, emphasizing the collective responsibility human bear in safeguarding the environment for future generations

References

1. Buell, Lawrence. *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture*. Revised, Belknap Press: An Imprint of Harvard University Press, 1996.
1. 2.Chakrabarty, Dipesh. "*The Climate of History: Four Theses*" Critical Inquiry, vol. 35, no. 2, University of Chicago Press, Jan. 2009, pp.197-222. https://doi.org/10.1086/596640.
2. Ellis. C Erle . *Anthropocene: A Very Short Introduction*. Oxford University Press, 2018.
3. Garrard Greg. *The Oxford Handbook of Ecocriticism.* Oxford University Press, 2014.
4. Gore, Al. *The Earth in Balance.* Viva Books Private Limited. 1993.
5. Robinson, Kim Stanley. *Forty Signs of Rain*. Harper Collins, 2005.
6. Trexler, Adam. *Anthropocene Fictions: The Novel in a Time of Climate Change (Under the Sign of Nature: Explorations in Ecocriticism)*. University of Virginia Press, 2015.
7. Wells, David Wallace. *The Uninhabitable Earth; A Story of the Future.* Penguin Random House. 2019.