



**SRI VENKATESWARA INTERNSHIP PROGRAM
FOR RESEARCH IN ACADEMICS
(SRI-VIPRA)**



SRI-VIPRA

Project Report of 2023: SVP-2357

“Climate Fiction: Mapping the change through Literary Texts”

IQAC

**Sri Venkateswara College
University of Delhi**



**Benito Juarez Road, Dhaula Kuan, New Delhi
New Delhi -110021**

SRIVIPRA PROJECT 2023

Title: Climate Fiction: Mapping the change through Literary Texts

Name of Mentor: Ms. Debarati Sen	Photo
Name of Department: BA(H)English	
Designation: Assistant Professor	

List of students under the SRIVIPRA Project


S.No	Photo	Name of the student	Roll number	Course	Signature
1		Himangi Patnaik	0221019	BA (H) ENGLISH	Himangi Patnaik.
2		Ritu Roy	0221036	BA (H) ENGLISH	Ritu Roy

3		Asmi Handoo	0221009	BA (H) ENGLISH	<i>Asmi Handoo</i>
4		Shreya Jain	0221603	BA (H) ENGLISH	<i>Shreyajain</i>
5					
6					

[Signature]
Signature of Mentor

Certificate of Originality

This is to certify that the aforementioned students from Sri Venkateswara College have participated in the summer project SVP-2357 titled "**Climate Fiction: Mapping the changes through Literary Texts**". The participants have carried out the research project work under my guidance and supervision from 15 June, 2023 to 15th September 2023. The work carried out is original and carried out in an online/offline/hybrid mode.


Signature of Mentor

Acknowledgements

I would like to thank Sri Venkateswara College for giving us a platform like SRI VIPRA. Undergraduate research early at the college level, goes a long way in making curious minds make their way through academic rigour.

It has been a wonderful experience to guide and be 'mentored' by bright, young minds through the maze of new information and 'discoveries.' We have learnt and unlearned many things together, including the idea of individual intellectual pursuits in collaboration with an equally motivated peer group.

I hope the work of the students find an appreciating audience and contribute to the larger understanding of the issues that they have tried to reflect upon.

Debarati Sen
Assistant Professor
English Department
Sri Venkateswara College,
University of Delhi.

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Climate Fiction: Mapping the changes through Literary Texts.

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Introduction

Sri Venkateswara College Internship Program Research and Academics (SRIVIPRA) is an undergraduate research internship program that has provided the students with a valuable platform to hone their independent critical thinking skills. Our topic of research is, “Climate Fiction: Mapping the Changes through Literary Texts” which was carried out under the guidance and mentorship of Ms. Debarati Sen (Assistant Professor, Department of English). The topic of research is extremely pertinent especially in the current situation when climate crisis is a real-time experience. It was a fascinating journey for all of us to engage with the importance of Literature in mapping climate change and exploring the diverse lenses of the Holocene.

Throughout the summer internship program, all the participants enthusiastically researched upon and contributed to the purpose of mapping the changes and seeking for sustainable coping mechanisms. Climate change is a very complex and layered issue which has to be dealt with sustainable ways that acknowledges unequal climate experiences to be able to preserve our environment. Given the opportunity we were able to share vital knowledge and have learnt and unlearnt many things about global warming and climate crisis in the process.

Through this we hope to have contributed towards deconstructing intersectional issues related to Climate Change and also towards reconstructing solutions to sustainably cope with Climate Change. We are extremely grateful to Ms. Debarati Sen, our mentor for guiding and supporting us throughout the research program, for whom we were able to successfully carry out independent research on the topic of our interest.

Climate change: The need for an intersectional environmental justice framework.

Himangi Patnaik

Debarati Sen

BA English Honors

15th September, 2023

Abstract-

Climate change is a globally recognized threat and is discussed extensively. Research on climate change was originally shaped within natural sciences. But now that it has broadened, social aspects of climate change have increasingly been acknowledged. This paper aims at providing a more intersectional approach to the climate crisis with focus on colonialism. Firstly, I would trace the genealogy of climate change and colonialism and the addition of the word 'colonialism' in the lexicon of IPCC, 2022. Secondly, I would discuss Aja Barber's book titled *Consumed* at the intersection of colonialism, racism and consumerism. Thirdly, this paper would discuss climate injustice and the need for an environmental framework vis-à-vis climate justice.

Keywords- Climate fiction, colonialism, environmental racism, ecofeminism, climate justice.

Introduction-

We live in a time when climate change is no more a possibility but a reality. News about the impacts of climate change can be heard almost every day which has resulted in an increase in the number of ecological summits globally. We are constantly being reminded that if we don't take action then extinction isn't far. Sustainable ways of living are being promoted and overconsumption is being ridiculed. However, can capitalism and environmental protection go hand in hand? While billionaires are busy travelling in their private jets everywhere, marginalized people all over the world are facing the adversities of climate change. The climate crisis exacerbates social inequalities and are a result of the manifestations of oppressive social systems like colonialism, capitalism, and patriarchy. I have divided this paper into three sections wherein the first section deals with colonialism, second with climate fiction and the last section is about climate injustice which is a broad topic and thus, has been covered in subsections.

Climate change and colonialism-

“The environmental emergency is a legacy of colonialism”, says a Greenpeace report. However, there are not much discussions revolving the effects of colonialism on the environment when talked about the impending doom of climate change generally. This is majorly because the European countries were responsible for this phenomenon that has adverse effects till date, after decades of decolonization. They don’t even want to talk about it, let alone take accountability for the same. The erasure of this discussion doesn’t only harm the countries affected but the environment as a whole as well. Thus, more discussions have to be made on the effects of colonialism in order to minimize it. This section of my paper aims at providing a literature for climate change and colonialism and to discuss other forms of colonialism that we’re doing today without realizing its consequences.

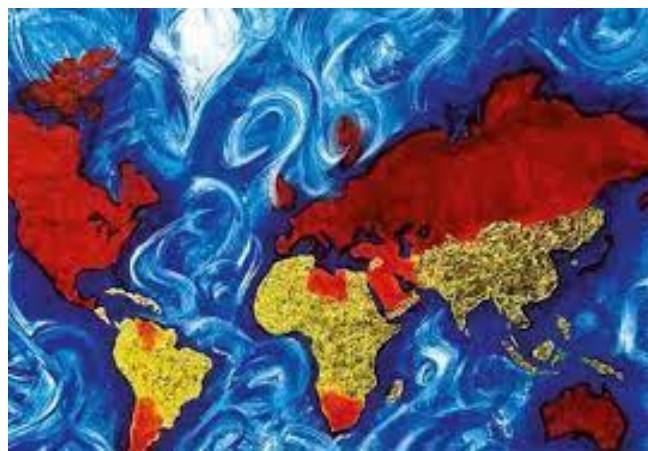
Western colonialism is a political-economic phenomenon whereby various European nations explored, conquered, settled, and exploited large areas of the world. It began around the 1500s with the discovery of sea routes. What started as a trading purpose ended up with years of exploitation and oppression. Europeans colonized almost the entire world, directly or partially, extracting the resources as they wanted, exploiting the environment, and oppressing people. They were responsible for both genocide and ecocide¹. The colonizers’ initial purpose was extraction of resources which in itself was degrading to the environment. They excavated mines and minerals, switched to cash crop plantations like indigo which exploited the farmers and also led to the farming grounds not replenishing their minerals due to continuous harvesting and lack of crop rotation. Western colonial legacies operate within a paradigm that assumes they can extract its natural resources as much as they want and the Earth will regenerate itself (Assali). Colonizers banned the rural and tribal communities from protecting their centuries age-old subsistence farming methods. This led to extreme environmental degradation. The ancient farming methods were environment friendly and gave time to the soil to replenish itself. Further, they started driving away the Indigenous people from the forests and took away timber and other natural resources, also putting a ban on slash and burn agriculture. These practices degraded the environment and still has repercussions on these lands. The building of railways in India was another project that required clearing of lands and using forest products without check. The colonizers not just colonized lands but nature as well. Settler colonialism had similarly devastating impacts on the forest cover and biodiversity of New Zealand. In 1840, European settlers started confiscating land from the Maori Tribes and their main goal was to extract as much timber as possible from the forests.

In the Nutmeg’s Curse, Amitav Ghosh describes spices in the 1600s as one of the original ‘primordial’ global commodities traded for their luxury value. They were valued both for their culinary and medicinal purposes. Ghosh draws a direct line from the 17th century global trade in fossil fuel energy sources like oil and gas, the combustion of which drives the climate crisis. He reminds us that fossil fuels, are nothing but buried botanical matter acted on by time. But more insightfully, Ghosh points out that the same maritime choke points that controlled the flow of spices also control the transportation of energy around the world today. The central idea being that we are as dependent on plants and botanical matter as we were in

¹ Destruction of the natural environment by deliberate or negligent human activity.

the 17th century, despite the myth of modernity that we have transcended our need for natural products, instead depending on human-made things for our survival. Current climate crisis can only be understood fully by centering the role that colonialism played in naturalizing the rapacious extraction of resources, the concentration of wealth and power in the hands of an elite few, and an ideology of modernity and progress grounded in violence against many human and non-human beings.

Indian artist and activist Namita Kulkarni released a new public arts project which demonstrates the relationship between colonialism and climate crisis. Through a collection of thought-provoking paintings and stories, the project aims to raise awareness about the ongoing human rights violations that have contributed to the climate crisis while highlighting the need for a more inclusive, equitable, and sustainable future. “Far too often, we see the climate crisis framed as a matter of carbon emissions that we can compensate or offset our way around,” shared Namita. “But the colonial dimensions of the climate crisis cannot be overlooked. I wanted to create a series of paintings that make explicit the link between colonialism and the climate crisis, and also point to indigenous perspectives that dominant culture excludes.” (Kulkarni) This painting series was made possible by a grant from a human rights organization ICAAD². She told the Times of India that as per the facts, the Global North has the highest quantum of carbon emissions, yet it continues to take from the Global South and try to push the burden of climatic consciousness as per the principle of equity. Her painting is on the next page-



*Namita Kulkarni's paintings aim to light an alternative perspective
on sustainability and environmental conservation³*

After more than three decades since its inception, the Intergovernmental Panel on Climate Change (IPCC) finally mentioned the term ‘colonialism’ in a 2022 report. The word colonialism was added to the IPCC’s lexicon in the sixth assessment report. The panel’s working group two report, which looks at the impacts of climate change on people, listed

² International Centre for Advocates Against Discrimination is a human rights advocacy center working to create a more equitable future through legal innovation.

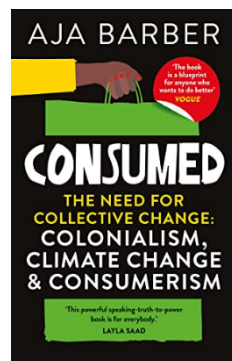
³ Picture and description credit- the TOI

colonialism not only as a driver of the climate crisis but also as an ongoing issue that is exacerbating communities' vulnerability to it. This addition means that officials and scientists from around the globe now recognize the significant role colonialism has played in heating up our planet and exploiting its resources. Many communities on the ground are still living through the remnants of colonialism—and fighting the forms into which it has evolved. Those who have contributed the most to produce the life-threatening consequences of climate change are less exposed to the worst effects and have the greatest capacity to mitigate those consequences for themselves. Most rich elite people living in the Global North can easily save themselves from the climate crisis by buying expensive appliances like air purifier and also claim that they are concerned towards the environment by buying sustainable products which are usually expensive. On the other hand, they are responsible for most of the carbon emissions by using Private jet to travel, not checking on the carbon footprint of the devices that they use, etc. Colonialism still continues as the Global North drives the flow of almost everything in the world. The drive for electric vehicles in Europe intensifies mining for cobalt and lithium in Africa and Latin America. (Sovacool,2019) In 2019, a group of Congolese families sued Apple, Google, Dell, Microsoft and Tesla for aiding the death and injury of children working in cobalt mines. The plaintiffs argued that these companies had been aware of child labor in the supply chain. Research is less likely to investigate climate change impacts in the global South. Moreover, they are also the least responsible for climate warming emissions. The entire continent of Africa accounts for the lowest share of greenhouse gas emission at 3.8%. In contrast, the US and European Union are responsible for 19% and 13% of global emissions respectively. As the dance between colonialism and capitalism grows faster, less care is paid to the environment. There is an urgent need to decolonize climate and let it replenish first. Taking accountability and working towards minimizing its consequences would bring in some change to begin with. Decolonization of climate is a slow process and would take decades but since we cannot go back in time and change it, the best way to go about it is to start working on it. Now that the IPCC recognizes the effects of colonialism, solutions are awaited.

Coming to colonization in the present times, even the sky is not the limit to our anthropocentrism. We are now colonizing the outer space with our space ventures. In 2022, there were 186 orbital launch attempts from earth. Rocket launch exhausts contain greenhouse gasses like Carbon dioxide and particles of alumina and black carbon that trap heat, leading to global warming. Some rockets can emit approximately 10,000 times more black carbon particles than modern turbine engines found in airplanes and jets. Another environmental impact of rocket launches is ozone depletion. High temperatures during launch and re-entry events can convert nitrogen in the air into nitrogen oxides which can deplete ozone in the stratosphere. Scientists estimated that a “fleet of 1000 launches per year of hydrocarbon based HREs typically used for space tourism would cause ozone loss up to 6% in polar regions. if left unregulated, rocket emissions could deplete ozone more than Ozone-Depleting Substances (ODSs) ever did by 2050. This will setback the Montreal Protocol. Billionaires like Richard Branson and Jeff Bezos have been to space and plan on expanding space tourism for common people. “We’re here to make space more accessible to all,” said Branson, shortly after his flight. “Welcome to the dawn of a new space age.” This would mean an increase in the number of Rocket launches which will cause harm to the environment for tourism purposes. Moreover, a huge amount of capital gets invested in these projects, which can in turn be used for environmental projects like the Kyoto protocol, Montreal protocol and so on. A limit has to be set on the number of Rocket launches per year

by each country if not a complete ban on space ventures. Alternate clean fuels should be used in these rockets which will decrease the release of OSDs. The atmospheric layers protect us from the Ultraviolet rays and other harmful things in the outer space. If we destroy it then (anthropocentrically speaking) extinction won't be that far.

Aja Barber's *Consumed*⁴-

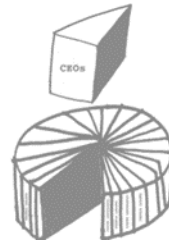


It is no surprise that like colonialism; racism, capitalism and consumerism also pose a threat to the climate. Feminism, colonialism and racism are inextricably linked and can be understood when discussed together. *Consumed* by Aja Barber is a book that investigates the intersection of colonialism, consumerism, racism and climate change. The sub title itself emphasizes the need for a collective change. Aja Barber is a writer, personal stylist, and style consultant. Her work focuses on sustainability, intersectional feminism, racism and all the ways systems of power effect our buying habits. *Consumed* is her debut book which is an example of a climate fiction (cli-fi). Climate fiction is the literature that deals with climate change. The genre includes science fiction and dystopian/ utopian themes. It is rooted in science fiction, but also draws on realism and the supernatural. The term “Cli-fi” became popular in the 2010s but books about climate change have been written before that and have retrospectively been included in climate fiction. Critical discussions about cli-fi express many of the concerns that have animated the broader field of literary and social criticism known as “ecocriticism.” Also referred to as Anglophone fiction and Anthropocene fiction, it is resolutely contemporary and dedicated to creating new narratives adequate to current conditions. The criticism devoted to the genre has carefully documented the persistence of national, masculinist, and anthropocentric tendencies in some of its major works (Caren Irr).

Aja Barber starts her book with an open letter to the fast fashion CEOs whom she refers to as “dudes” since 95 percent of them are men. There’s no mitigation in the letter and she directly exposes the fast fashion CEOs who earn their money by exploiting the garment workers. She asks them to use their money to clean their own mess and reform their entire business from top to bottom and make it worker and environment friendly. She ends her letter with the following lines-

⁴ This segment is in zine format taken from the book’s illustrations. Illustrators- Octopus Publishing Group.

“I still believe you might have a smidgen of humanity left in you, behind those piles of money you are so keen to grow, with no real purpose other than capitalist ambition. So, prove it. Because here’s the thing: you can’t buy integrity.



Yours,

Aja Barber.”

Although Barber addresses her letter to the fast fashion CEOs, these lines apply to all those rich capitalists who are expanding their money at the cost of our environment and people.

Further, Aja talks about her own experiences in the fashion industry and writes about how difficult the internship days were for her as a Black woman. Placements weren’t that hard to find but the interns were never paid for their work which ensured that the industry remained limited to upper-class and middle-class people. She mentions a report by the Sustainable Fashion Initiative, Cincinnati, about unpaid internships titled ‘The Dream Will Never Pay Off’ wherein they reveal the shocking statistics that 77.8% of the interns whom they interviewed received financial help from their family to make ends meet while interning. This clearly indicates that only privileged people could intern easily. They also write about how BIPOC⁵ interns are often “othered” due to the significant lack of representation within the industry owing to racial exclusion.’ Aja herself faced racist comments very often during her internship days even with regards to her interests. White people quizzed her on whether Black people deserved to like something or not. “White men often do this to white women. But white people also do this to everyone who isn’t white” (Barber). So, she had to thrive in a highly racist and sexist environment in order to get a job where she interned. It was only another Black woman who helped Aja with her work and also vouched for her skillset even though she didn’t directly intern under her.

As the book’s title suggests, Aja writes about consumerism and how the fast-fashion industry has been over producing ultimately leading to over consumption. However, her take on consumerism isn’t just limited to psychology and economy but she talks about race and colonialism. If you think the conversation about race doesn’t apply to the fashion industry, you’d be dead wrong” writes Barber. “Most of the clothes are produced in the Global South by BIPOC, these clothes are then consumed in the Global North by white-majority countries, and then when the clothes are unsold/used they are dumped right back on the Global South as ‘donations’.”

Climate injustice-

⁵ Black, Indigenous, and people of color

The impacts of climate change are not felt equally by everyone. Moreover, the repercussions of climate change are not necessarily faced by those who contribute towards it. Most of the times, it affects the most marginalized and the contributors remain unbothered by it. This is what is called climate injustice which relates to how the impacts of climate change are felt differently by different groups and how some people and places are more vulnerable than others to these impacts. By now, we know that climate change is not only an environmental problem rather it intersects with social systems, privileges, and embedded injustices, and affects the people of different class, race, gender, geography and generation unequally. When we discuss climate change, it is usually in terms of what “we” collectively have done to the climate and there is no accountability taken by the ones who actually add up the most to climate degradation. We currently live in the Holocene epoch as suggested by the geologists. However, many scientists claim that we live in what is called the ‘Anthropocene’ which is the ‘recent age of man’. It highlights the takeover of the earth by human beings in which the earth’s ecosystem has gone through radical changes due to human impact. Some of the phenomena of this epoch are global warming, ocean acidification, rising sea-levels, ozone depletion and so on. Amidst the debate between the Holocene and the Anthropocene, the term Anthropocene has been rejected by many Indigenous and Black scholars, primarily because the term assumes that the climate crisis is caused by universal human nature rather than the actions of colonialists, capitalists, and patriarchs. The term also implies that the earth was stable until around 1950 which denies the history of people who have been exploited under these oppressive systems. Our approaches to climate justice rarely foreground the affective⁶ experience of climate change. Climate researchers report that vulnerable communities even in the most “prosperous” nations, are the first and worst hit (Shepard and Corbin-Mark). These include people of color, Indigenous people, women, and low-income communities. They are socio-economically disadvantaged, disproportionately burdened by poor environmental qualities and have the least resources to adapt to the changing environment.

In this section, we will first look at how climate change disproportionately affects some parts of the world and then how it affects disadvantaged people all over the world. Climate change is a result of the Global North’s colonization, industrialization and neo-capitalist practices which are now being severely faced by the Global South. The Western countries industrialized much earlier at the expense of other countries and never checked upon their greenhouse gas emissions. Now that the emissions need to be regulated, the countries which are now developing their industries have to curb their greenhouse gas emissions. Countries like the United States and Canada have the highest per capita greenhouse gas emissions. The United States, while contributing the most of any nation to the climate crisis, has barely scratched the surface of paying for its costs. It will take the US almost 286 years to cover its entire fair share of climate costs. Longer than the years of many countries’ independent existence (UUSC⁷, 2021). As the wealthiest country, the US also has the required resources to tackle the adversities of climate change and also switch to sustainable lifestyle (which by the way has not been done yet despite their riches). It is rather the countries that don’t contribute much to the climate crisis, who adopt sustainable ways of living. When the responsibility for causing the problem, and the cost of paying for its effects, fail to line up in such a dramatic fashion, it is sheer injustice. For example- Just 0.09% of the world’s total emissions are produced in Mozambique. On average, its 31 million citizens each have a carbon footprint

⁶ Lived, emotional, embodied

⁷ Unitarian Universalist Service Committee

around a quarter of someone in the UK. However, it is among the many vulnerable countries expected to bear the brunt of the impact of climate change but can hardly be expected to cut down their emissions⁸.

Similarly, all African countries are at a highly vulnerable position with respect to climate change impacts. Look at the image below-



“We Africans contributed least, but are being affected most. The long history of slavery, colonialism followed by post-colonial policies have served to keep Africa trapped in poverty. This makes their health systems fragile and the catastrophes they have suffered, include losing millions to the HIV pandemic, enduring several Ebola outbreaks, only to now be going through the covid pandemic” said Dr. Asmamaw, a UK doctor from Ethiopia. This was said by a doctor from Ethiopia when Africa was dealing with both the pandemic and climate crisis. Look for the top 10 countries being affected by climate change and you’ll find many countries from Africa there. They do not have the capital and infrastructure to deal with this and the crisis ends up remaining unresolved, killing people across the country. Meanwhile, the “first-world” countries do not care and shift the blame on the affected countries. This problem is yet to be discussed and solved. Now look at this pie chart showcasing the countries that dump their plastic waste into the oceans-

⁸ Source- BBC

⁹ Taken from the feminist on Instagram.



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We have countries like Philippines, India, and Malaysia here topping this thoughtfully made chart. However, there's a catch. Are these countries also responsible for generating that plastic? Is there a chart with countries who produced the most amount of plastic or exported the most amount of plastic? Unfortunately, (and fortunately for the West) not. The countries responsible for generating and exporting the plastic to these countries are USA, UK, and other European countries. These countries fail to deal with the copious amount of plastic and end up dumping it into the waters. Thus, the world besides them have always been either a place meant to exploit or a dump yard for the Western powerful countries. A good solution to this as suggested by Brianne West¹¹ would be to put taxes on virgin plastic which would cost the wealthy countries their money when they try to export it. These are some of the examples of the injustice faced by disadvantaged countries when there are many. The wealthy countries have made promises of contributing their money for climate issues but have never given the required amount because it doesn't affect them adversely yet and even if it does in the future then they have the resources to cope with it (and they can always exploit other countries).

Coming to how different people face it, there is no doubt that minorities and marginalized communities in every part of the world like women, tribal people, people of color, poor people etc. face it the worst. Environment racism¹², ecological racism or ecological apartheid is a form of systemic racism where people of color are disproportionately burdened by environmental hazards. This is done through policies and practices that place low-income and people of color in close proximity to polluting facilities like power stations, plastics plants, and methane gas pipelines etc. without providing them any health benefits. A study by Dr. Robert Bullard- the father of environmental justice- found "race to be more important than socioeconomic status in predicting the location of the nation's commercial hazardous waste facilities" He proved that African American children were five times more likely to have lead poisoning from proximity to waste than Caucasian children. These findings are no coincidence but indicate how deeply racism is embedded even when it comes to climate change. Between 1950 and the present, the political, social, and economic conditions of many

¹⁰ Source- Ecopolitic

¹¹ entrepreneur and the founder of Ethique, the world's first zero-waste beauty brand.

¹² Coined by Benjamin F. Chavis Jr.

metropolitan areas helped cluster African Americans into older urban areas with high concentrations of poverty and environmental pollution (Jargowsky, 1997). From 1930s to 1978, there were municipal landfill siting in Houston's African American neighborhoods. Environmental racism turned many of Houston's well-established African-American neighborhoods into the dumping ground for household garbage. From the mid-1920s to the late-1970s, a form of de facto zoning contributed to all five, or 100%, of the city-owned municipal landfills being located in well-established African-American neighborhoods: Freedmen's Town/Fourth Ward, Sunnyside, Trinity Gardens, and Acres Homes (Bullard). Houston operated eight garbage incinerators and all five of these city-owned large garbage incinerators were located in African-American and Latino neighborhoods. So, it is not just factory siting but also involves issues and concerns around pesticide exposure, lead-poisoning, transboundary toxic waste dumping and so on. A new environmental justice paradigm is needed to replace the current system which trades human health for profit and places the burden of proof on the "victims" as opposed to the polluting industries.

In India, the environmental challenges are diverse, from a severe deficiency in environmental amenities like clean water and sanitation for bare human existence to pollution from the hazardous wastes generated by a modern consumer society (Sawhney 2018). There are laws to protect the environment in India but these laws often neglect the tribal people, lower-caste people and women. In the context of India, Gadgil and Guha (1995: 2) argue that "it is hardly surprising that the environmental movement in India has not given sufficient thought to the larger processes that are contributing both to ecological deterioration and to social strife." The environmental policies in India are still colonial in nature and ignore the sustainable development of a larger ecosystem. Often times, environment and culture are seen separately while they both heavily influence each other. Some cultures through their practices protect the environment and similarly, the environmental impact of a place is visible on the people residing in that place. Environmental injustice is a colonial construct, especially in India. Current environmental research strongly shows the continuation of coloniality in environmental injustices (Whyte 2018; Sloan and Schmitz 2019). The tribal people of Jharkhand, for instance, have been displaced from both their land and land rights. They have also been denied access to diverse biological resources and values and are now forced to migrate to other places for livelihoods. As a result, they are the most striking examples of ecological refugees in the country (Gadgil 2023: 14). The first Indian cli-fi thriller series made by Nila Madhab Panda called "The Jengaburu Curse", tells us a story revolving around the themes of corporate greed vs vulnerable natives, forced displacement of tribals, mining, naxalism, and the role of the state as a not-always-neutral arbiter. Set in a small town in Odisha, the show follows the story of London-based financial analyst Priya Das. When her father, Prof Das, goes missing, Priya is forced to come back to Odisha. As she starts a search for him, a series of strange events ensue that unravel an unlikely connection between the indigenous Bondia tribe and the mining state of Odisha. The making of such series highlighting the plight of marginalized communities sow the seeds of conversations around these topics that aware the people about the environmental injustices towards some communities. Gupta (2020) argues that "the struggle of indigenous populations against environmental injustice is not purely a civil or environmental concern, but instead a complex interplay of self-determination, colonialism, racism, sovereignty and environmental destruction." In a casteist, capitalist, and patriarchal society, no issue remains distant from these oppressions and no vulnerable community remains unaffected by these issues.

The impact of climate change can also be seen with the lens of gender. Here, women and queer people face the climate crisis worse than others (read men). Ecofeminism is the intersection of gender and climate change and ecofeminists specifically talk about and work on issues related to gender and climate change and how they are connected. It seeks to reexamine both the feminist and environmentalist movements and augment each of their arguments. The framework examines how gender and nature intersect, specifically how binary definitions falsely categorize opposing groups, assigning disproportionate value to one grouping and encouraging hierarchical thinking (Bove). Creating binaries have always posed problems and when it comes to human development, nature is seen either as an obstacle or a resource meant to be exploited. The whole idea of environmental determinism (naturalization of humans) and possibilism (humanization of nature) in geography also discusses how we see nature as either a dominating force or something to be tamed by humans. This view reinforces the belief that its either us or the nature and that we cannot co-exist and live in the natural world without causing harm to it. Nature is thus placed opposite to development, especially technological development. Women and nature are kept on the same side of the binary and both are oppressed and exploited by patriarchal manifestations like capitalism. Many ecofeminists have talked about the connections between women and nature and how both need to be liberated simultaneously. Some of the books that discuss women and nature are Chimamanda Ngozi Adichie's *Purple Hibiscus*, Ivone Gebara's *Longing for Running Water* and others. Seen from the experiences of Third-world women, the modes of thinking and action that pass for science and development, respectively, are not universal and humanly inclusive, as they are made out to be; modern science and development are projects of male, western origin, both historically and ideologically. They are the latest and most brutal expression of a patriarchal ideology which is threatening to annihilate nature and the entire human species (Shiva). Greta Gaard, an ecofeminist writer, scholar, activist and documentary filmmaker talks about how climate change and overconsumption are 'masculinist' ideologies and how techno-science approaches should be replaced by queer feminist post-humanist climate justice perspectives at the local, national and global level. Even amongst women, those who are doubly marginalized are more exposed to bearing the impacts of climate change. The *Chipko*¹³ Movement is a great example of a social uprising which was led by Indigenous women and spread across North India. The real roots of the movement date back to the 1730s when Amrita Devi led the movement to resist soldiers from cutting down trees on the orders of the Maharaja of Jodhpur, in her native Khejarli village. In the ensuing violence, 363 members of the Bishnoi tribe were beheaded as they hugged the trees to prevent them from being cut¹⁴. Even now, we see women and queer climate activists talking about the issues related to climate change more often than men, be it Greta Thunberg, Wyn Wiley, Mia Mottley and so on.

Conclusion-

In my paper, I have discussed the injustices of the effects of climate change vis-à-vis colonialism, racism, consumerism and feminism. Similarly, it is exacerbated by all other oppressive systems and the marginalized communities face the worst impacts. There is, thus,

¹³ Literally translated 'to hug'.

¹⁴ Source- Feminism in India.

an urgent need for an intersectional environmental justice framework that would ensure the inclusion, representation and also protection of the rights of all those who are most vulnerable to the effects of climate change.

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THE RIVER OF STORIES: DECOLONIZING COLONIAL MODERNITY & SEEKING THE ALTERNATIVE WAY THROUGH LITERATURE

Ritu Roy

Debarati Sen

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ABSTRACT

For an eternity, tribal communities and women have been isolated and excluded from the humongous project of building the modern world promising all luxuries to human kind. However, the destruction caused to the Earth, almost irreversible climate change and extensive global warming, in the process has been largely ignored and disguised as a development project. This paper aims to deconstruct the strife for the 'Modern Lifestyle' defined by a Colonial, Capitalist and Patriarchal system and attempts to seek the alternative, sustainable way of life that is inherent in Tribal knowledge systems, beliefs and practices, mythical beliefs and the vital knowledge of nurture often provided by women. After years of colonization the Indian consciousness is still pathologically colonial and is made to believe in a Eurocentric order of existence of utility, work, and leisure. In this paper I intend to discuss Orijit Sen's graphic novel "The River of Stories" as a crucial piece of literature that takes a decolonial stand and highlights the vitality of the Tribal beliefs and traditions that have been often ignored and dismissed of as "primitive and uncivilized" ways of living. The use of myth, memory, voice, and topography in "The River of Stories" becomes instrumental in resisting the construction of the Rewa Sagar dam which leaves the Tribal people of the area homeless, the animals with no place to go and an immense mar is caused to the forests and the biodiversity. Among everything, the most important purpose of the paper is to locate climate change primarily as a result of a colonial, capitalist order and finding back the sustainable order through literature and indigenous myths and history.

Keywords: Coloniality, Modernity, Climate fiction, Climate Change, Indigenous myths, History.

INTRODUCTION:

In this paper I intend to answer three questions and subsequently produce my argument stated in the abstract. The three questions are in order of the three sections below. The first question tries to understand what is coloniality and colonial modernity and how does it become

instrumental in suppressing the Tribal knowledge systems justifying them as being away from 'reason' and 'rationality'. Second section, discusses how the marginalized indigenous knowledge, their myths, and traditions can be helpful in finding sustainable ways of living and is vital for the conservation of the earth. The third section, tries to seek the alternative way of sustainable living through literature (in this case *The River of Stories* by Orijit Sen).

Coloniality and Colonial Modernity:

Before we delve deeper into the problems and impact of colonialism and coloniality on climate change we need to understand what colonialism and coloniality mean. Oftentimes synonymously used Colonialism and Coloniality are two very different systems. Colonialism according to Nelson Maldonado Torres “denotes a political and economic relation in which the sovereignty of a nation or a people rests on the power of another nation, which makes an empire.” Meanwhile, Assante defines colonialism as systems and practices that, “seek to impose the will of one people on another and to use the resources of the imposed people for the benefit of the imposer.” Colonialization was the act of exploiting resources and exercising power over the colonies for one’s own benefit justified through the disguised belief of the divine purpose of ‘civilization’ as the White man’s burden. Colonialism survives and functions within political, sociological, cultural values and systems of a place through coloniality even after the nation becomes free from their colonizers. Colonization did not only occur through physical seizing and forceful displacement of people and indigenous communities from their own land, but also through the colonization of minds (Assante 2006). Coloniality, on the other hand, “refers to long standing patterns of power that emerged as a result of colonialism, but that define culture, labor, intersubjective relations, and knowledge production well beyond the strict limits of colonial administrations.” (Maldonado-Torres, *On the Coloniality of Being*, 2007).

Therefore, coloniality survives colonialism. Colonizing the mind or what Battiste calls “cognitive imperialism” rejects other knowledge systems and “denies people their language and cultural integrity by maintaining the legitimacy of only one language, one culture, and one frame of reference.” (Battiste, 2005). The absolute dictation of who is the supreme race, the supreme language and one supreme culture was the power that was acquired through colonization. The process of domination and declaration of this continued supremacy was successful through two axes as per Anibal Quijano, “The codification of the differences between conquerors and conquered in the idea of ‘race’, a supposedly different biological structure that placed some in a natural situation of inferiority to the others. The conquistadors assumed this idea as the constitutive, founding element of the relations of domination that the conquest imposed ... The other process was the constitution of a new structure of control of labor and its resources and slavery, serfdom, small independent commodity production and reciprocity, together around and upon the basis of capital and the world market.” In more simple terms, colonialism was executed by proving the inferiority of one race to the other and maintained through capitalist mode of the master-slave relationship. The ‘modern’ situation is not much different. “Coloniality is maintained alive in books, in criteria for academic performance, in cultural patterns, in common sense, in the self-image of peoples, in

aspirations of self, and so many other aspects of our modern experience. In a way, as modern subjects we breathe coloniality all the time and every day.” (Torres, 2007)

In the creation of the identity as a ‘global citizen’, the individual socio-cultural identity takes the back seat. Inevitably, as a result of the colonial outlook we have divided ourselves into races from a white perspective. Therefore, the binary of the whites and the non-whites (as in the black, brown, yellow, and the mestizo population) is a manifestation of colonial thinking. As, such Eurocentric knowledge and practices are deemed neutral, universal, and apolitical, and have led to the erasure of entire knowledge systems. Imperial and colonial practices have created “truths” of the colonizers’ stories, gazes and accounts of the Other, that are reinscribed in ideologies, discourses, institutions, scholarship and imagination (Smith, 1999). In the Indian context, our conscience has hegemonically accepted the Eurocentric view of the modern world as better than ours and as superior to us. We subconsciously (using the word subconscious very loosely) are so used to seeking validation from the west that within our own people we have created binaries of the ‘developed section’ of the society and the ‘underdeveloped section’ and have otherized/isolated the people who live differently than what we consider a modern lifestyle. “Colonial relations depend vitally on the role played by memory in framing belief systems and hence in hegemonizing the minds and actions/bodies of people belonging not only through a specific period but across numberless ensuing generations.” (Chapter 1- History and Myth: Post-Colonial Dimensions, Edited by Arti Nirmal, Sayan Dey, Varnan Press)

The Indian conscience has fantasized the Eurocentric notions of ‘development’ so much that anything different from the notion makes us uncomfortable; for instance, the simplistic, sufficient and to a large extent sustainable lifestyle of the Tribal people away from the capitalistic norms of productivity and results of the work done really haunts us to a point that we have brought in the same labels of ‘primitive, barbaric’ people for them that once the British used for the Indians and pan Africa. As a result of the colonization and an inherent colonial mindset we have created spaces of difference between each other, between the living and the non-living, the past and the future, and have created the conditions for dehumanization, conquest, imposition, power over, violence, environmental degradation, genocide and slavery. In this paper, the major focus will be on the environmental degradation aspect of colonialism, coloniality and modernity.

To dissect the impact of modernity and the strife for the seemingly modern lifestyle it is necessary to understand the beginning of the concept of modernity and the dark side of it. Anthony Giddens, Mignolo, Torres, and Quijano, all talk about modernity as a consequence of coloniality and vice versa. In Mignolo’s words, “the rhetoric of modernity and the logic of coloniality are... two sides of the same coin” and that “there is no modernity without coloniality.” Mignolo focusses on the darker side or the con aspect of modernity as being the “constant reproduction of coloniality.” Again, to quote Giddens, “Modernity refers to modes of social life or organization which emerged in Europe from about the seventeenth century onwards and which subsequently became more or less worldwide in their influence. This associates modernity with a period and with an initial geographical location.” Torres too considered Modernity to be a product of the European Renaissance or the European Enlightenment. “Modernity as a discourse and as a practice would not be possible without coloniality, and coloniality continues to be an inevitable outcome of modern discourses” (Maldonado-Torres). Quijano too elaborates on the same, “if the concept of modernity...

refers to the ideas of newness, the advanced, the rational-scientific, the secular (which are the ideas normally associated with it) then there is no doubt that one must admit that it is a phenomenon possible in all cultures and historical epochs.”

Even if modernity is regarded to be progressive and brings about development, it is invested in coloniality. Modernity emerges from the idea of rationality and reason that was the most important aspect of the European Enlightenment. The hubris of science and the diktat of the one who had the authority to decide what is to be considered as science and what is valid marked the Enlightenment period. This was an exclusively White- upper class- patriarchal space with no recognition to the women, the lower class, and people of color. Women were barely considered citizens and non-whites were simply dehumanized, either meant to be slaves or object of mockery and absurdity. The idea that something does not exist unless it is “discovered”, particularly by those who have the positional power, identities, or legitimize the “discovery” (Patel, 2016). From this frame knowledge was seen as property to be discovered and owned; and reason and rationality were seen as abilities that only the White man possessed. The Industrial Revolution in Europe made way for the capitalist rule and environmental consciousness was blindsided. Subsequently, this was brought to the East with the colonial rulers and until today we carry on the same tradition without even questioning the problems of coloniality and colonial modernity.

The next section of the essay focusses on how colonial modernity has been instrumental in the exclusion of the Indigenous Tribes of India labelling them as a part of the ‘underdeveloped’ section of our society and has made the least efforts to preserve their culture and traditional practices that has consequentially led to Climate Change, deforestation, and the unchecked degradation of our natural resources.

Subjugation of Tribal Knowledge and Climate Change:

Now that we are clear with the epistemic traditions and etymological definitions, let us move from the what to the how of coloniality and climate change. Down the lanes of history to the contemporary times there has not been many changes in our perception and stereotyping of the Tribe. From the Indian perspective our understanding of the Adivasis is a product of the colonial knowledge, the division and categorization of the Indian people as a part of what the Britishers called an ‘Ethnographic state’. In 1857, after the First War of Indian Independence (or in the colonizers words the Sepoy Mutiny) and a shift in power from the East India Company to the Crown, the colonial state of India came to be known as the ‘Ethnographic State’. The colonizers felt the need to understand the Indian culture and society to exercise absolute power and rule over India. During this period (that is around the last quarter of 19th century and the early 20th century) the people of India were categorized into ‘Martial races’ or ‘Warrior races’; ‘Criminal Tribes’ and the ‘Professional or Cultivating caste’. The people were categorized on the basis of the extremely unreliable and the oppressive concept of hierarchy of races based on their level of evolution. The first ethnographic survey of India

was done in 1889. They proposed to measure the racial differences by measuring the nasal index and the size of skull. The indigenous people were therefore understood as savages, removed from civilization, modernity, and termed them as static, primitive beings. The otherization of the tribes, subjugation of the people and their colonization was justified through pseudoscientific racist methods.

The contemporary perception of tribal communities haven't changed much either. Stereotypes of being backward, removed from the civilized world persists till date. They are known to be geographically isolated, residing in hills, and dependent on the natural produce. Besides their geographical isolation, the tribal people are socially excluded from the mainstream and looked upon as the Other. To give a brief context, the Lokur Committee (1965) was set up to look into the criteria for defining Scheduled Tribes. The Committee recommended 5 criteria for identification, namely, "primitive traits, distinct culture, geographical isolation, shyness of contact with the community at large, and backwardness." The simplistic, sustainable way of live of the tribes are labelled as socially & economically backward because of the fact that they live in a way that is different than the hustle of the capitalist world. The Oxford Dictionary defines tribes as. "A tribe is a group of people in a primitive or barbarous stage of development acknowledging the authority of a chief and usually regarding themselves as descendants of a common ancestor." Keeping aside colonial definitions, several Sociologists and Historians like TB Naik elaborate on characteristics of tribal people or Adivasis as economically backward (and economically retarded i.e. they do not understand monetary economics), primitive in their practices, geographically isolated, and psychologically conservative (Naik). If you are questioning why do these definitions even matter? These definitions become the means to otherize and isolate the tribal communities, subjugate the Tribal knowledge and are simply instrumental in muting their voices and invalidating their culture, beliefs and traditions.

The Anthropocene epoch has put the onus of climate change on the entire human race, therefore depoliticizing the uneven impact of climate change on particular groups of people. The marginalized communities are the most vulnerable groups facing the downside of climate change. Meanwhile, the Industrialists, the Politicians, the Capitalists and the Colonists, who are truly the ones responsible for the destruction of the Earth and nature, are also the ones least impacted by the terrible effects of climate change. It is not the Anthropocene epoch but the Anthro-po-obScene epoch and it is high time that these people on the top of the socio-economic hierarchy take accountability of their actions. It is only in 2022 that the IPCC (Intergovernmental Panel on Climate Change) mentioned "colonialism" as the historical and ongoing driver of climate crisis. The report said, "Present development challenges causing high vulnerability are influenced by historical and ongoing patterns of inequity such as colonialism, especially for many indigenous people and local communities." Another 2021 study published in Nature showed that research is less likely to investigate climate change impacts in Global South, even though those 78 low-income countries are facing the worst impacts. They are also least responsible for climate warming emissions; the entire continent of Africa accounts for the lowest green house gas emissions at 3.8%. The US and European Union are responsible for 19 and 13 percent of global emissions.

Impact of Colonialism and Capitalism on Climate Change: There are endless examples of Environmental degradation caused by the colonizers and the capitalists. In pre-colonial India the peasants and farmers of Bengal and a few other areas were forced to produce indigo in the

lands where they grew food crops, especially rice. Indigo plantation and extraction of the dye from the plants led to infertility of the soil and involved a large amount of chemical toxins being released to the rivers that caused health hazards to the people and destroyed the marine life. The construction of the Indian Railways undertaken by the Britishers was not for developmental purposes but for the sheer need to exploit our natural resources. Forests were cut, natural resources were plundered and many tribal communities lost their homes in the process. Similarly, settler colonialism in New Zealand has destroyed vast forest covers and the Māori tribes have faced years of oppression. “In 1840, European settlers started confiscating land from the Māori tribes and took over most of the country by 1939. The main goal of the colonizers was to extract as much timber as possible from the forests. As the land holdings of Māori tribes dwindled, so did New Zealand’s Forest cover. Present-day New Zealand has at least 60 percent fewer forests than before European colonization. That habitat loss resulted in the extinction of dozens of endemic bird species.” (How Colonialism Spawned and Continues to Exacerbate the Climate Crisis, Anuradha Varanasi, 2022)

British Colonization also resulted in more frequent wildfire events in the Western region of the Himalayas. In the beginning of the late 1800s the British ordered the felling of most Oak and Deodar forests and replaced them with Pine forests for commercial purposes. As a result, during the dry season the Himalayan Pine forests experience wildfires almost every year, killing large numbers of local people and biodiversity. Even after years of freedom from colonial administration, we still face the ugly aftermath of colonization. The post-colonial situation, specifically in terms of the environment has only moved towards the worst. The construction of several dams, highways and other infrastructure in the name of modern facilities and technological development involved clearing of vast forest tracts, has flooded numerous villages leading to displacement of the tribes and local people of the areas and resulted in more frequent occurrence of natural calamities like landslides, increased soil erosion, droughts and floods.

The Narmada Dam Project, one of India’s most controversial and probably the most marring development project undertaken and implemented by the Indian government, is one of the million cases of irrational and devastating projects with the purpose of “development.” The Narmada Dam Project was one of the largest hydroelectric power projects in the world, with 3000 large and small dams, however, the damage caused was immense and irreversible. The dams were constructed across three states of Gujarat, Maharashtra, and Madhya Pradesh, and 1.5 million people were displaced in the process of which a disproportionate number of people were Adivasis and Dalits. The environmental cost of the project was immense and the experience of the people is still haunting. The building of the Sardar Sarovar dam, which was the largest dam of the project, costed the flooding of 37,000 hectares of forest area, the displacement of over half a million locals, the destruction of biodiversity, rendering acres of fertile agricultural land completely barren and had salinized the soil of the area making it impossible for different species of plants and trees infertile. Just one dam out of the 3000 dams caused such horrific destruction; the total destruction is beyond calculation or even perception. Arundhati Roy on the issue had stated, “The State (India) wants to build these dams on the Narmada River in the name of National Development. But, how can you measure progress if you do not know what it costs and who has paid for it?” The Adivasis and the locals from other communities as well for decades followed the method of seasonal

irrigation during monsoons to preserve the fertility of the land. Damming the river degraded the fertility of the soil due to continuous irrigation and also led to salinization of the soil. "Each monsoon season thousands of people are told by the Indian government that they will have to be relocated as their ancestral lands are flooded out. The people whose lives were going to be devastated were neither informed, nor consulted, nor heard." (Arundhati Roy)

The Dams were built with the purpose of irrigation, power production and flood control, but the purposes conflicted with the other. Irrigation would use up the water for power production. Flood control required the reservoir to be kept empty during monsoon months to deal with an anticipated surfeit of water, and if there's no surfeit the dam remains empty which defeats the purpose of year round irrigation, which is to store rain water. Again, the amount of power required to pump water through the network of canals was more than the power produced by the hydroelectric plant. The immense amount of waste of both monetary and natural resources was done to execute a dam project with less benefits compared to the lost. To recompensate, the Government of India proposed Resettlement and Rehabilitation programs. However, only few people received benefits from these programs and hundreds and thousands of people affected by the project were not adequately compensated for their loss. The ground level of the problem was defining who the Project-Affected-Persons (PAPs) were. The World Commission of Dams urged the government to compensate and rehabilitate all people in the reservoir, upstream, downstream and the catchment areas whose properties, livelihood and non-material resources were affected. In reality, however, people affected by the extensive canal system were not considered as PAPs and were never compensated for their loss.

In the above two paragraphs I have tried provide a concise picture of the horrors of the Narmada Dam Project which is nothing as compared to the actual devastation. Similar to the Sardar Sarovar Dam are numerous other development projects initiated, approved and implemented by the government that have done more harm than any progress. Several protests were staged and spearheaded by the tribals, and the local, indigenous communities to save their homes and ancestral lands. Some of these environmental movements were, Save the Silent Valley, the Narmada Bachao Andolan against the Narmada Dam Project, Jungle Bachao movement, Apikko movement, Chipko movement, Bishnoi movement among many others. The most recent environmental hazard project is the Char-Dham Project. The few examples above are the history, present and future of oppression by the Politicians, Capitalists, Businessmen, and Patriarchs who are unfairly not at all affected by the crisis that they created. The definitions of subjugation, oppression and violence that the colonizers have left is reflected in our actions, perhaps not always overtly but inertly in the binaries and hierarchies that we have created lured by the promise of development, modernity and Eurocentric notions of an advanced lifestyle. The seeds sowed by the colonizers have become tall trees bearing lavish fruits enjoyed by the people at the top of the social-political-economic ladder. The only reality left for the marginalized people is one of loss afflicted by those in positions of power.

As against the oppressive lopsided reality, this paper from now onwards attempts to focus on building an alternate narrative, the narrative of the oppressed and not the oppressors, who for centuries have believed and have practised healing, sustaining, and living in harmony with their nature. The tribal experience, perception and coping with climate change is very different. What many non-indigenous people dread from afar is a living reality for them, what

might be just extinction of one plant species for us is loss of their homes and resources on which they are directly dependent. Sheila Watt-Cloutier, a member of the Inuit community in an interview with Ottawa Citizen said, "Inuit culture is based on the ice, the snow, the cold... It is the speed and intensity with which it has occurred and continues to occur that is a big factor why we are having trouble with having to adapt with certain situations. Climate change is yet another rapid assault on our way of life." The melting of glaciers, the rising of sea levels, and global warming has never as brutally affected the ones sitting in their AC cabins, scrolling their phones or smart devices, pretending to be sustainable by going plant-based. The same sea and the scenic beaches that tourists have destroyed are the means of livelihood for the indigenes, environment degradation to them is taking away their right to live and co-exist.

As Audra Mitchell's research shows, today's global discourses of extinction are often so focused on "species" that they cannot come to grips with Indigenous peoples' experiences of having their relationships with nonhumans greatly disrupted by colonialism (Mitchell, 2016) Leanne Betasamosake Simpson, a Mississauga Nishnaabeg writer, musician, and academic from Canada, discusses about how the oral culture of the indigenes cannot keep up with the inconsiderate speed of the change in climate and their ecosystem and their constant need to relocate themselves as a result of colonialism which has led to the loss of their own culture and tradition. In Simpson's words, "Colonial thought brought us climate change."

Let us consider a brief history of Anishinaabe/Neshnabe' peoples, who include diverse Ojibwe, Odawa, Potawatomi, Mississauga, and other peoples whose homelands are in the Great Lakes region but also, through relocation, in places such as Oklahoma, Kansas, and North Dakota. Their memories and histories are connected to migration and movement and a constant change in their political identities and individual identities. The Anishinaabe people talk about their fluidity of identity and their strategies to make connections with the people of communities other than themselves and their connection with the non-humans of the place of their relocation. The core intergenerational history that the Anishinaabe people have inherited is that of dislocation and relocation. The purpose of discussing so much about the memory and history of the tribal and indigenous people is to talk about the way that they cope with climate change and resist the threats of their culture and traditions fading away.

Indigenous and tribal people are closely connected to nature and some of them believe in Animism or the worship of nature and spirits. Their rituals and traditions are about respecting and honouring the Nature that provide them with vital resources. Tribal groups practice reverence to their creator, the Nature or the Earth and their customs are inherently conscious to climate. A few north-eastern tribes of India believe in elemental production and sacrifices made by their creator to create a sustainable planet for them to live. For example, Phangnalomang's tale of the Dhammai tribe, the tale of Kujum Chantu of Apa Tani tribe, myths of how the earth and the sky were created from two large, shiny eggs of the Hrusso Tribe, and the tale of the woman named Khuning Kuam of Singpho tribes. All these mythologies and folktales believed by the tribal groups take a decolonial stand, breaking all notions of western reason and have their own epics about their revered mother Earth. A number of tribal communities follow female leaderships and some are matrilineal societies like, The Garo and Khasi tribes, Musuo tribe in China, Bribri Tribe in Costa Rica, Umoja Tribe in Kenya, the Minangkabau people in Indonesia, Akan tribe in Ghana among others. Women leaderships as against these were never considered as valid in patriarchal systems.

Women were always seen as secondary citizens or even objects without intellectual abilities and hence were never allowed to be in positions of power and restricted within walls of domesticity. Even in the so-called Modern era women do not possess equal rights and space as their male counterparts. A small example of the sustainable knowledge that our mothers and grandmothers have practiced for years is that of Reuse, Reduce, and Recycle, the three Rs that the SDGs now promote.

The ancestors of the indigenous people and tribal groups for years have observed and learnt from nature and have created their own knowledge systems. Their knowledge system has provided for weather predictions for centuries. An accurate example for this is the practice of Agro-Pastoralism in Kenya, New Zealand, and few places in US and Europe. It is practiced by the aboriginal, settled and nomadic communities. It is a system that can help boost productivity, reduce soil erosion, and improve nutrient and water-use efficiency to avoid droughts. It is also a climate change mitigation option according to the UNCCD. Such local and indigenous knowledge is often undermined and undervalued and seen as backward while these knowledge systems are the ones that promote sustainability and are in tune with climate consciousness. The Chakma community of the Chittagong Hill Tracts every year face flooding and excessive landslides due to the unusual heavy rainfall and climate change. Over the years they have adopted methods like building houses on the hill slides and planting trees all around their houses to prevent their houses to flow away in flash floods.

The exclusion of these very necessary knowledge systems of the indigenous communities and women from the project of modern development makes the Climate Crisis even worse day by day. The tribes through decades of colonial violence, environmental depletion, constant relocation have developed their lifestyle into that of sustainability and one of rebirth and reproduction. We cannot fully adopt tribal lifestyle, due to the difference in our environments and repeat the process of colonising by adapting into their livelihood. However, what is needed is incorporating Indigenous knowledge systems into the development programs and making efforts towards preserving their culture instead of blindsiding them and looking upon them as the Other.

I would like to end this section with a quote by Kat Brigham, Chair of the Board of Trustees for Confederated Tribes of the Umatilla Indian Reservation (CTUIR). The reason I chose this quote is because it in all true essence holds the need to preserve and protect the cultural integrity of tribal and indigenous people.

“Tribal people have learned to take care of the land because our land took care of us... It’s important for tribal people to be at the table. We have a lot of knowledge, we have a lot of experience, on how to protect and restore natural resources. This is part of our culture, our history, and our future.” (Kat Brigham, Speech at a Wilson Center event)

THE RIVER OF STORIES- SEEKING THE ALTERNATIVE WAY THROUGH LITERATURE:

The River of Stories by Orijit Sen, India’s first graphic novel that also happens to be a climate fiction, is about tribal resistance against building of a dam on Rewa Sagar which in the process of execution rendered the tribal people homeless and left with no other choice but to move to cities away from their homeland to work and feed their families. It is a biting satire

on coloniality and colonial modernity; *The River of Stories* (referred to as *RoS* from here onwards) takes a decolonial stand, debunking the Eurocentric/Western notions of development vis-à-vis technology and lifestyle with the use of irony. The graphic novel is also considered to be a fictional representation of the Narmada Dam Project and the Narmada Bachao Andolan spearheaded by the Adivasis (native tribals) of the affected areas, farmers, environmentalists, human rights activists, and huge number of allies. The movement was founded and lead by Medha Patkar. *RoS* is a nonfiction-fiction that creates “a geopolitical area of conflict, resistance and exploitation using the affordances of the comics medium.”

RoS is in the form of a journalistic account from the perspective of Vishnu, a reporter of the newspaper named *Voice*. Vishnu is set on a project to interview migrant workers in the city for an article in the newspaper that he works for. He begins interviewing his house helper Relku, who is an Adivasi woman living in the city for many years. This becomes Vishnu's and subsequently the reader's entry point into the life stories of hundreds and thousands of Adivasis and local farmers and their resistance against the exploitation and being victims of the brutal violence and Climate change. Parallel to Relku's story and the movement, Orijit Sen also narrates Kujum Chantu's tale bringing in the mythical element to the graphic novel. *RoS* is divided into three parts, The Spring, The River, The Sea. The three parts of the novel represents the free flowing of Rewa Sagar; how the revered river origins from a small spring, gathers strength in her midstream and makes her way to the huge sea. This can also be seen as a metaphor for the journey of a voice, initially unheard of and speculative (the spring), gaining strength and traction as it flows (the river), and finally makes its way to the public within the sea of thoughts of the people (the sea). Interestingly, the newspaper is also called *Voice*. The myriads of voices merge to create possibilities of decolonial resistance, reactions, and independent co-existence.

Orijit Sen's illustrations show a rift between the lifestyles of the 'city dwellers' and the Adivasis. The conflict between both the lifestyles and the power struggle is a result of the coloniality. The idea that a modern lifestyle with the so-called modern facilities is superior to simplistic lifestyle dependent on the nature and its produce comes from the hegemonic acceptance of the superiority of Eurocentric notions of modernity (as discussed in the first section of the paper- Coloniality and Colonial Modernity).¹⁵ The picture below is an illustration from the *RoS* portraying the forced developmental projects undertaken by the government (*sarkaari people*) in the name of modernising the country.

¹⁵**NOTES:**

Third section of the paper is in zine format.



The *sarkaari* people then become the reinforcers of the colonial discourse of modernity and otherization of the Adivasis as “primitive” is immediately enforced. The moment when the Adivasis start calling the *sarkaari* people “sahibs” (Hindi word commonly used for the master/colonial master), a master-slave binary is created pedestalising the government official as superior to the Adivasis.

As the narrative moves ahead Somariyo, Relku’s brother questions the officials and challenges their reason for destroying their land and is immediately reprimanded for it. The Somariyo’s voice is suppressed and shut down. “...when people do not buy the package willingly or have ideas of how economy and society should be organized, they become subjects of all kinds of direct and indirect violence” (Mignolo). For if the “geography of reason” shifts the entire colonial system is challenged and compromised. It is very important for the voice of the oppressed to be heard and resonated, it is important for the voice to meet the sea. The Rewa Andolan does the work of creating the noise, however, it is dependant on the media to carry the voice and make it heard. The novel also comments on the drive of media to support and carry the voice throughout the nation, and put pressure on the government to take decisions in favour of all the citizens including the marginalized.

Orijit Sen in his “The River of Stories” uses the elements of myth, memory, voice and topography to decolonize and present the tribal perspective highlighting tribal knowledge, myths, and traditions as not illogical against western reason.¹⁶ Sen parallel to the Rewa Andolan narrates the story of Malgu Gayan who sings the tale of Kujum Chantu, a selfless woman who creates the earth with the mud on her body for her children and people to live in¹⁷. When Malgu Gayan, who sleeps for twelve years and snores for thirteen, is summoned

¹⁶ The words Eurocentric and western has been used interchangeably.

¹⁷ The folktale of Kujum Chantu follows the myth of the creation of the earth as believed by the Apa Tani tribe of Arunachal Pradesh.

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**Unravelling the impact of Climate Trauma and Eco-Anxiety in Climate Fiction:
Exploring Psychological Resilience and Societal Responses**

Asmi Handoo

0221009

BA English Hons

Ms. Debarati Sen

Abstract

The paper investigates how climate change can result in psychological distress, including fear, anxiety, grief, and feeling helpless. Addressing the emotional and psychological toll of climate change requires urgent attention. In the face of climate trauma, exposure to extreme weather events can lead to psychological distress, including anxiety, depression, and PTSD.

It aims to demonstrate how literature can serve dual roles - as both a means of coping and a catalyst for action – via the lens of climate fiction. Through climate fiction, imagining worst-case scenarios and exploring the emotional and political dimensions of environmental adversities can be done in a unique way. Through it, people can reflect on their eco-anxiety and envision futures while taking purposeful steps. Notable climate fiction works, including "Avatar" by James Cameron, spotlight the notion of ecocide and the battle between nature and technology. Within the film "Take Shelter," Jeff Nichols unravels a psychological tale of a protagonist grappling with visions stemming from climate change. Climate fiction holds the power to raise awareness and campaign for environmental consciousness, too. Environmental degradation, as depicted in movies like "Wall-E," emphasizes the emotional and psychological toll of a post-apocalyptic world. Anthropomorphism is used by narratives to create empathy for characters that are non-human, thus prompting spectators to reflect on their own commitment to environmental conservation. "Kadvi Hawa" is a film that explores social and political dimensions of climate change and its impact on vulnerable populations. By exposing the injustices embedded in environmental exploitation, it emphasizes the need for immediate global intervention. Through "The Day After Tomorrow," the research paper stresses the significance of confronting climate pain and taking tangible steps to counteract it. Only by recognizing the legitimacy of climate trauma and eco-anxiety, we can better tackle the challenges of climate change. Climate fiction plays a vital part in raising awareness, building resilience, and inspiring collective action. By addressing the actuality of climate trauma, we can build an adaptable and resilient global society better equipped to manage the existential threat of climate change.

This research paper also explores the evolving portrayal of climate trauma over time, explores into the concept of eco anxiety as a catalyst for initiative-taking responses, and examines how the emerging field of eco criticism contributes to the evolution of climate fiction. It also investigates how climate fiction serves as a coping mechanism to address the uncertainties of climate change and the future. By analysing these dimensions, this paper

aims to shed light on the profound influence of climate trauma in shaping both literature and societal responses to the pressing challenges of our changing environment, advocating for a more informed and resilient global community.

Despite the growing consciousness around climate change, its effects and growing anxiousness are a result of uncertainty perpetuated by the constantly degrading state of natural resources, we lack in taking active action towards encouraging sustainable ways of living. Climate Trauma may be referred to as an umbrella term encompassing a diverse range of psychological distresses that come with an existential background. 'Climate trauma refers to the psychological distress and emotional impact experienced by individuals and communities because of climate change and its consequences. It includes the feelings of fear, anxiety, grief, and helplessness that arise from witnessing or experiencing the destructive effects of climate change, such as extreme weather events, rising sea levels, and loss of biodiversity. Climate trauma can also be triggered by the anticipation of future climate-related disasters. It is a concept that explores the intersection of trauma theory and the realities of global warming.' The thought of future generations being born on a planet constituting of exhausting resources or in a post ecocidal place is just the beginning of a plethora of problems escorted by only limited solutions. Discussing deeply in detail of imaginary probable of a post-apocalyptic world oddly soothes the human need to actualise and climate fiction supplies an outlet for the same. Understanding this in-depth analysis of a dystopian world wherein humankind experiences all its firsts again after nulling the earth of its natural gifts relieves us of the eco anxiety bought by global warming, untimely rain, and other devastating calamities. This uprising of Climate fiction is a new factor and caters to the same emotional and political aspects that accompany adversities. There is growing scientific evidence to support the existence of climate trauma. Studies have shown that people who have been exposed to extreme weather events are more likely to experience anxiety, depression, and post-traumatic stress disorder (PTSD).

A study by the American Psychological Association found that people who had experienced a natural disaster were more likely to have symptoms of PTSD, even years after the event (APA). The study also found that people who lived in areas that were more vulnerable to climate change were more likely to experience anxiety and depression. These aggravated psychosocial effects of climate change are portrayed following nuanced methodologies in several pieces of fiction. In the context of James Cameron's film "Avatar," the concept of ecocide is prominently presented. The film is set on the fictional moon Pandora, which is home to a diverse ecosystem that includes the Na'vi, an indigenous humanoid species. The plot revolves around a human corporation's desire to extract a valuable mineral known as "unobtainium" from Pandora, which leads to environmental destruction and the displacement of the Na'vi population. A comparison of manufactured tech and Pandora's natural beauty features prominently in the film. Natural environments and technological progress must find equilibrium, raising questions about the right balance. In contrast, the Na'vi are strongly attached to nature, while humans disregard it. Film concludes with the defeat of the human military forces and the preservation of Pandora's ecosystem. This optimistic resolution may oversimplify the challenges of environmental conservation, as in reality, such efforts often involve complex compromises, legal battles, and ongoing struggles. The director heavily inspired by Hindu mythology and Indigenous societies mimicking the Hindu perspective of

nature being sacred. Setting is of crucial importance for cli-fi; endangered cities, islands, and remote Arctic regions are common locations (Irr 9).

In a more real sense, it is a reimagining of the possible worst-case scenario paralleling the real world "Avatar" presents ecocide because of the greed of humans, driven by the capitalist, consumerist mindset destroying the environment and its inhabitants. The movie carries a message of activism urging audiences to ponder upon the ethical and environmental effects of their own actions. In Jeff Nichols' "Take Shelter" (2011), a psychological thriller layered with themes of mental health, family dynamics, and an unspoken environmental crisis, subtle references to climate change appear. In Ohio, Michael Shannon's working-class character Curtis LaForche faces nightmarish dreams of an approaching doomsday. Curtis is faced with the challenge of reconciling his inner turmoil with Samantha's scepticism meanwhile, their deaf daughter sees the escalating drama. The movie uses the cinematic tool of pre-traumatic vision, it can be interpreted as a metaphor for the existential fear and worry that many individuals experience due to environmental problems. The term "pretraumatic vision" refers to the experience of vivid and distressing mental images or fantasies about future catastrophic events. It is a concept that is explored in the context of climate change and trauma. Pretraumatic visions can be seen as a manifestation of pretraumatic stress, which is characterized by anticipatory anxiety and fear about future traumatic events. These visions can include nightmares, hallucinations, and disturbing thoughts related to the potential consequences of climate change. The concept of pretraumatic vision is used to analyse how individuals and societies grapple with the psychological impact of climate change and the uncertain future it presents. The film sheds light on how Curtis's growing unease corresponds with societal confrontation of escalating climate change. The turmoil in his dreams signifying the growing sense of dread people harbour about ecological devastation they perceive as unstoppable.

The film underscores how Curtis's fixation on constructing a storm shelter exemplifies mankind's drive to develop measures for shielding loved ones from impending cataclysms, parallel to humanity's quest for means to abate the consequences of climate change. Through this parallel, the psychological toll of environmental concerns on individuals and families is made strikingly clear. "It also offers spectators a view of their own position as spectators of pretrauma films, that is, Curtis is in a similar position to that of the pretrauma film's viewers: his fantasies of catastrophic climate change are like the fantasies viewers watch in the genre. However, there is a difference in positioning vis-à-vis the traumatic events: viewers rarely suffer pretraumatic symptoms as directly as Curtis or to the same degree from watching such scenarios. Rather, they occupy the vicarious (or secondary) trauma position and, following a screening, may express only minor or no symptoms, depending on personal difference. Anticipatory anxiety best expresses what viewers endure in watching this genre of films" (Kaplan 36).

Exploiting its storytelling potential, "Take Shelter" examines these broader concepts by probing the anxieties and uncertainties surrounding climate change. Eco cinema continually makes use of an emotional and psychologically focused approach to highlight the adverse effects of climate change in our growing consumerist and capitalist society. This Walt Disney Picture released in 2008 catered to younger audiences is a great example of romanticising ecocide. Characterized as "cli-fi," "Wall-E" acknowledges the ramifications of climate change. A post-apocalyptic world is shown in the movie, resulting from the consequences of pollution and climate change. Despite his diminutive stature, Wall-E is entrusted with a vital task - improving the repercussions of humanity's activities, starkly illustrating the

severity of climate change. As seen in "Wall-E", climate trauma can be viewed as the emotional and psychological consequences of the degraded surroundings. Relatability is enhanced through anthropomorphism, which attributes human qualities to non-human things in the film. The inclusion of human-like qualities makes Wall-E and other robots in the film more endearing to the viewers. Through empathy towards the characters, viewers can better understand the urgency of environmental care and global warming awareness. Environmental psychology explores the relationship between people and their physical environments, showing the lone robot inhabiting the planet hits right at the human need for community and an underlying fear of loneliness. The depictions of Earth as a polluted wasteland and the contrast with the clean and organized Axiom spaceship can be analysed from an environmental psychology perspective. Climate trauma and eco-anxiety serve as a means for the film to address consumerism, overreliance on technology, waste, environmental degradation, and climate change. "Wall-E" employs the medium of climate fiction to condemn current environmental actions via a bleak future brought on by disregard for the planet's well-being.

Anxiety about the future incited by such fantasies may produce traumatic emotions like those of PTSD and a disabling uncertainty about one's own future. But engaging in such fantasies may, on the contrary, offer what I call "memory for the future," less a disabling anxiety than a productive warning to bring about needed change (Kaplan 18).

Moving away from dystopias, the genre of climate fiction is mostly characterized by a systematic anticipatory dread so close to real life incidents and calamities faced by people in real time. Movies such as *Kadvi Hawa* come horrifyingly close to realities of social, economic, and communal disparities faced by the people of our country. Filmmaker Nila Madhab Panda directed the Indian drama film "Kadvi Hawa," which was released in 2017 and moving. Shedding light on the harsh realities of climate change, the film explores its social and political nature as well as its devastating impact on marginalized communities in rural India. The story revolves around blind, Heddu works as a debt collector in a drought-plagued village of Odisha for a nearby bank. Due to changing weather patterns and crop failures, a young bank officer named Gunu Babu has been sent to the village to retrieve overdue loans from indigent farmers. As the story advances, "Kadvi Hawa" analyses the interplay of environmental migration, debt, and the amplified human suffering caused by unpredictable weather patterns, droughts, floods, and crop failures. It shows not just anxiety but its eco anger and helplessness that encompasses the storyline. Anxiety is an activating emotion provoking avoidance of threat (i.e., flight), and anger is activating and associated with an approach tendency (i.e., fight). Without looking at the separate effects of discrete negative emotions, researchers overlook varied impacts on behaviour (Stanley). Two characters face personal and moral dilemmas in the face of impending environmental disaster while these challenges are highlighted. The need to address climate change, reflected in the film's poignant commentary also portraying the interdependent relationship between humans and their environment. It indirectly critiques on how the rich elitists manage exploitation of resources and pollution yet, the poor and underprivileged face the repercussions of these actions first hand. To even partially shift the focus of debate and deliberation away from human influence on climate is to risk consorting with 'climate sceptics', to invite the charge of siding with those who would 'depoliticise' the whole issue of global environmental change (Stanely).Of climate change, "Kadvi Hawa" serves as a vivid reminder, necessitating urgent global action, however it takes a deep dive on just how complex and multi layered it truly is highlighting the human cost of climate change. Growing eco anxiousness displayed in films, social media and literary texts are an essential factor for active change.

Greta Thunberg, a well-known climate activist, used climate anxiety to motivate world leaders at the 2019 World Economic Forum saying, "I want you to feel the fear I feel every day. And then I want you to act" (Economic Times).

The Day After Tomorrow (2004) elaborates and highlights the problem with climate scepticism as well as the denial of the adversities of climate change. As per E. Ann Kaplan "the antidote to climate trauma is denial" (Kaplan 148). This denial is a defence mechanism employed by us to underplay the fear anxiousness and anger that comes along with the ecological uncertainties of the generations to come. Denial is a defence mechanism established by Anna Freud that involves rejecting reality and blocking awareness of external events (McLeod). The person may respond by refusing to perceive the situation or by denying that it even exists if it is simply too much to handle. This is a primitive and dangerous defence because no one can ignore reality and get away with it for very long, as you might expect. It can function independently or, more often, by other, more complex mechanisms that support it. Starting the film are dramatic weather occurrences across the globe, including intense hailstorms in Tokyo and unforeseen temperature fluctuations in New Delhi. By way of human activities, specifically the melting of polar ice caps, climate change is attributed. Years passed with Jack Hall sounding the alarm on climate change, only to struggle with both government and public persuasion. As the film unfolds, a monstrous polar vortex appears, unleashing crippling storms and unheard-of cold. New York City was hit particularly hard by a blizzard, while Los Angeles was ravaged by tornadoes, which affected the United States. While Jack sets out on a dangerous mission to save his son, Sam Hall is trapped in New York City alongside other survivors. locations. Events of the genre often turn on a dramatic transformation in the setting, such as floods or the collapse of the food system. The pacing of these narratives tends to be accelerated and punctuated by crisis. This temporality creates an anxious, fearful mood and a preoccupation with the instability of objects and the permeable boundaries between human and nonhuman lives. Together, these motifs cohere in an apocalyptic sensibility, and differences of opinion about the necessity of apocalyptic patterns of guilt, crisis, and salvation have been an important source of controversy surrounding the genre (Irr 2). These events portray chaos and destruction, highlighting the human cost and the struggles faced by those trying to endure. Climate disasters underscore the importance of a robust government response and global partnership. The movie "The Day After Tomorrow" conveys a message about the long-term implications of climate change. Although the film exaggerates the pace and gravity, it stresses the importance of climate change action. Climate change can result in immediate and catastrophic consequences for our planet if we do not act to reduce emissions and protect its climate system. As per existential psychology different from Freudian psychoanalysis, Kaplan theorises the concept of an unaffordable denial towards this rapid climate change. Unlike the humans in many of the films we've seen here, we are still able to imagine a future. So, we still have the possibility to move from what..... is a state of melancholia to a much more productive state of mourning, for what we are losing and for what many have already lost? (Kaplan 150)

Along the way of my research, I realised the obvious lack of research done on climate trauma in the branch of psychology. This lack in testing and scales of sound validity and reliability. The little research that does exist leaves out the gendered, communal, social, and economic aspects of this a broad multi-dimensional topic.

The ongoing effects of climate change result in psychological and emotional distress, known as climate trauma. Although climate trauma does not seem to be recognized as a specific mental health condition, it is essential to take note of its existence. A complex response to

environmental changes, it is. Disorders like depression or anxiety, recognized as diagnosable mental conditions, are different from climate trauma. From tangible and expected consequences, emotional responses in climate change vary. Rising sea levels and related displacement might evoke reactions including grief, anxiety, anger, or despair among people. Environmental stressors trigger these natural emotional reactions. Climate trauma impacts may be just as severe, even without a formal diagnosis. The effects of climate change can bring about decreased quality of life, strained community ties, and diminished mental health. Existing mental health conditions may also be worsened by it. Holistically, we need to tackle climate trauma by looking at both individual and societal factors. Building resilience, community support, and taking on climate change require deliberate steps. By recognizing climate trauma as a legitimate response, we can create actions and policies for better mental health. Especially with the Covid 19 pandemic that caused deaths, unemployment and isolation, the need to understand and study, in depth how biotic and abiotic elements affect us and how we regulate our emotions.

Eco criticism has been a great tool to understand climate trauma as a branch of several psychological issues by dissecting their representation in climate fiction. Climate fiction, more specifically, benefits from eco-criticism as it offers a unique ability to explore complex issues about our relationship with nature and the consequences of climate change. Eco-criticism has come into being due to the collective efforts of several scholars and writers who have delved into the relationship between literature and the environment. Literary works, environmental movements, and the 20th century combined to give rise to eco-criticism as a formalized field of study. In 1962, Rachel Carson wrote "Silent Spring", a ground breaking book which is now viewed as the precursor to eco-criticism. Through this framework, eco-criticism enables an insightful examination of how works portray the consequences of climate transformations and related ecological crises. Through literary works, ethical and philosophical aspects of climate change stories are examined with a focus on fostering environmental awareness and activism. Through an ecocritical lens, themes appear in cli-fi literature including environment justice, eco-apocalypse, and non-human entity portrayals. While I critique the films, I study for falling into this trap, I aim at once to historicize (as we must) and keep open the question of "how to live in uncertain times," a phrasing that avoids the apocalypticism prevalent in religious and media discourse and aims to draw attention to a serious reality (Kaplan 9). By investigating eco-criticism via cli-fi, we appreciate the interplay among literary works, cultural contexts, and environmental forces. Unpacking authorial views sheds light on pressing matters of climate change mitigation and adaptation, which broadens scholarly inquiry across literature and eco-activism. Supplying insight into how we process the possibilities of tomorrow, climate fiction is an imagining of the worst-case scenario as mentioned before. Its aim is to not only speak to the existentialism that comes with rapid climate change as well as environmental degradation but also to make us consumers question what a world without structure, civilization and morality look like. The probable post-apocalyptic world where man begins building community from scratch is a recurrent theme in climate fiction. A do over often romanticised to make things right, by the protagonist of the plot is only limited to the realm of fiction far from reality. Cli-fi is the fiction which depicts utter annihilation of the future and portrays dual perspectives: to begin it exhibits the societal, economical, and ecological life deteriorating, and the next exhibits the potential to withstand them and acclimatize to the new environment. The goal of the Cli-fi is to assist the readers to comprehend the effects of the changing climate on individuals and communities by providing real information that will help them better understand what will happen in the future (Manjhi).

Through the lens of eco-criticism, this research paper has delved deeply into the impact of climate trauma and eco-anxiety on individuals and societies. Emotional and psychological impacts demand attention and action as part of coping with climate change. The paper highlights the need to recognize climate trauma as a valid response to climate change's existential danger. An exploration of notable climate fiction works such as "Avatar," "Take Shelter," "Wall-E," "Kadvi Hawa," and "The Day After Tomorrow," this paper has demonstrated how literature can serve dual roles: Means of coping with trauma, climate change can also act as a catalyst. Examining environmental difficulties via art, we have been able to think about worst-case scenarios, emotional and human aspects of environmental crises, and the depth of our commitment to environmental protection. By the means of eco-criticism, climate trauma representations in literature and film have been illuminated, uncovering the ethical and philosophical complexities of climate change storytelling. By examining themes intently, we have been able to learn how literature can motivate people to act for the environment. Study limitations call for more research on climate trauma in psychology, along with the creation of reliable assessment instruments. A comprehensive approach to climate trauma must consider its gendered, communal, social, and economic dimensions.

Through climate fiction, raising awareness, building resilience, and inspiring action are possible. Confronting climate change requires us to acknowledge our eco-anxiety and take actionable steps. The global community must become informed and resilient in order to address the pressing challenges of climate trauma and our changing environment. Literature and eco-criticism must be used to shape a more sustainable and compassionate future.

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FICTION FOR THE FUTURE

Shreya Jain

B.A. (Hons) English

Debarati Sen

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“What will the world look like in 2050?” A question that resonates in today’s researchers’ minds. It’s predicted that by 2050, due to the lack of greenery, concrete forests will be made in its place. At this time there will be such a shortage of land that many big buildings will be cultivated to meet the needs of food and drink. According to a US report, the sea level will increase by 2050. That’s what is all showing up in this new breed of fiction, the environmental novels can make the stakes of future choices, and their effects on ordinary individuals and scenarios, seem clear. However, I look at Climate change in a quite universally affecting way as it is exacerbating things that happen naturally. In this paper, I wish to draw out a picture based on my thoughts, knowledge and perspectives that I build about Climate Fiction by researching on various blogs of famous researchers, songs and movies as well.

We are currently living in an epoch which our geologists are referring to as the ‘Holocene’; it began soon after the last ice age that ended around 11,700 years ago. (New York Times; ‘Anthropocene-age-geology’). But some scientists have argued that the label is far too antiquated. Around two decades ago, the term ‘Anthropocene’ was coined. ‘Anthro’ for

human and ‘cene’ referring to the gained prominence, goes on to highlight how human activities dominate the Earth’s land, atmosphere, and oceans significantly impacting its climate and natural ecosystems.

“Instead of treating the Earth like a precious entity that gives us life, Western colonial legacies operate within a paradigm that assumes they can extract its natural resources as much as they want, and the Earth will regenerate itself”, said Hadeel Assali, a lecturer and post-doctoral scholar at the Center for Science and Society, a Columbia Climate School affiliate.

It was the first time in more than three decades since its inception, the Intergovernmental Panel on Climate Change (IPCC) had mentioned the term ‘colonialism’ in one of its reports in 2022.

([news.climate.columbia.edu;how-colonialism-spawned-and-continues-to-exacerbate-the-climate-crisis](https://news.climate.columbia.edu/2022/05/12/how-colonialism-spawned-and-continues-to-exacerbate-the-climate-crisis/)) Thereafter, it was well acknowledged by the leading climate scientists that it is very much colonialism that is a historic and an ongoing driver of the climate crisis in abnormally heating up our planet and destroying its many priceless possessions. (Varanasi, 2022) “Present development challenges causing high vulnerability are influenced by historical and ongoing patterns of inequity such as colonialism especially for many indigenous people and local communities”, the report said. If we talk about Colonialism, it was actually motivated by the promise of plundering the environment and subjugating populations. And the pervasive and persistent institutions of colonialism make it far more challenging to address the climate crisis and implement solutions, especially in a just and equitable manner.

Moving on, in the last decade, there has been a considerable rise in the number of self-consciously ‘literary’ authors writing about climate change (Adetunji). This has led to a vast increase in scholarship on the subject, for their novels have received a great deal of individual attention. Most of the novels in question deploy a level of sophistication and complexity that rewards careful study. While these critical engagements do not necessarily deal with climate change, further work on the subject of climate change in these novels is easier because critics can depend on previous interpretations in developing new arguments.

‘Interstellar’ is a ‘Climate fiction’ or somewhat ‘grounded science fiction’ epic in which Nolan ventures into the world of scientific fiction and differentiates itself from most of the genre by focusing more on climate science than fiction (The movie “Interstellar” co-written by Christopher Nolan and Jonathon Nolan). The plot is based on the idea of exploring the horizons of the universe with a search for a planet that is optimal for the continuation of the human race. This is the not-too distant future, 2067, when severe natural disasters, hunger, and poverty occur on earth. In fact, these are the factors that are the reasons for the active search for a planet to colonize. Former NASA Pilot Joseph Cooper is forced to leave his family behind to pursue a human scale goal, and as a result of his breakup, cooper’s relationship with his son and younger daughter is damaged. Now, giving this film a serious watch made me pen down some points. The first one is that it could be observed that so many characters wept openly and that too in close-up which is absolutely not quite common in films like these. Secondly, the characters in this film are separated from almost everything that defines them, whether it is their loved ones, their personal histories, their cultures or even the planet itself.

Talking about the American Singer-Songwriter Billie Eilish’s mesmerising song, “All the Good Girls Go to Hell” that was launched in September, 2019 on Eilish’s Instagram account (Kailty, Jaden. “Billie Eilish Tackles Climate Change in ‘All the Good Girls go to hell’ music video”, [Georgetownvoice.com](https://www.georgetownvoice.com/)). It revolves around climate crisis, God, the devil and the idea that humans have made such a mess of the planet to such that they’re asking each other like

‘What is going on?’ or ‘Why did they do all of this?’. The video draws out a story in which some black-gloved hands rip off Eilish’s hospital gowns (She herself acted in her video song as usually she does) and stick white syringes in her back. Afterward, we see Eilish sprout white wings and fall from heaven into a black pit of oil. The image of black coating her white wings and filling her eyes as she struggles to crawl out of the pit is disturbingly captivating. As she stumbles down the street trailing oil, flames filled with dancing women engulf the area behind her. Eventually the fire catches up to her and sets her wings on fire. By the end, she turns back, wings burnt, and walks back into the post-apocalyptic scene. Elaborating on this in an interview with MTV, Finneas said he and Eilish thought that it would be fun to write a song from the perspective of the devil or God, who would be looking down at humans and be disappointed in them for destroying Earth. He continued saying them looking down is a consequence to humans for their actions. Eilish’s mesmerizingly soft voice is haunting and extremely catchy. When connecting the lyrics to the music video, there is an obvious meaning behind it all. After she released her music video for “all the good girls go to hell,” she posted on her Instagram story “Right now there are millions of people all over the world begging our leaders for some attention. Our earth is heating up at an unprecedented rate, glaciers are melting, our sea level is rising, our wildlife is being poisoned and our forests are burning.” She then stated that September 23 is the upcoming 2019 UN Climate Action Summit. “Standing there, killing time, can’t commit to anything but a crime” could very well be meant to point out our nations’ leaders’ inability to come to a consensus in regards to fighting climate change. In her Instagram story, Billie emphasized that “the clock is ticking” and mentioned strikes on September 20th and September 27th at which our generations’ voices can be heard. She is one of those not-so-many celebrities who not only talk about Climate but contribute towards it in their best possible ways. Writing about climate in her songs with that equal creativity and beauty just like her other songs is what I, as the youth, can observe and learn.

(Interview of Amitav Ghosh on his new book ‘Smoke and Ashes’) In his hotel suite in Chennai, on the penultimate leg of his book launch tour, Amitav Ghosh, in conversation with *The Hindu*, begins pretty much where his book “Smokes and Ashes” does: with a cup of tea. A question was asked, “In terms of lit, do you think there’s enough on climate change?”. Answering to this question he said that if every writer in the world wanted to write about it and nothing else, it would still not be enough. Because this is, to put it very simply, the most perilous time that humans have ever been in, and we just don’t know where this is going to lead and how it is going to affect us. This is not only about climate change, it’s about other kinds of anthropogenic impact too. Unfortunately, very often people will blame catastrophes on climate change, and not recognise the ways in which bad planning, ‘bad ways’ of creating development have also led to these catastrophes. If you try and disrupt the environment in these ways, obviously, the environment is going to create a huge backlash.

As we are talking about climate fiction, I feel that it is insufficient or incomplete without knowing what our climate researchers have in their shelf about this. Also, it makes my research more trustworthy and in-depth, since reading and knowing the true state and getting the right data about climate from those people whose whole work actually revolves around this particular subject, gives me the confidence to write about it. Climate Scientists who moonlight as communicators tend to bombard their audiences with facts and figures to convince them how rapidly our planet is warming up and scientific evidence demonstrating why we are to blame. A classic example is Al Gore’s ‘An Inconvenient Truth’, and its sequel, which are loaded with graphs and statistics. However, it is becoming ever clearer that these methods don’t as work as well as we’d like. In fact, more often than not we are preaching to the converted, and can further polarise those who accept the science from those who don’t.

one way of potentially tapping into previously unreached audiences is via climate fiction (cli-fi). As it explores how the world may look in the process of aftermath of dealing with climate change and not just that it is caused by fossil fuels. We absolutely need and should rely on peer-reviewed scientific findings for public policy, and planning to stop climate change and adapt to it. But climate scientists have stopped and should actually not expect everyone to be as concerned as they are, when they show a plot of increasing global temperatures. Cli-fi has the potential to work in the exact opposite way, through compelling storylines, dramatic visuals, and characters. By making people care about and individually connect to climate change, it can motivate them to seek out the scientific evidence for themselves.

Many pieces of cli-fi are perhaps closer to the truth than others. Could the thermohaline circulation (which carries heat around our oceans) shut down, bringing a sudden global freeze, as the movie ‘The Day After Tomorrow’ suggests? There is evidence that it will, but perhaps not as quickly as the film imagines.

Is it possible that fertility rates will be affected by climate change? The television-adapted version of Margaret Atwood’s ‘The Handmaid’s Tale’ blames pollution and environmental change for a world-wide plummet in fertility, thus giving a cli-fi undertone to the whole dystopian series. While there is no scientific evidence to currently back this scenario, thinking as a new parent someday, it struck a chord with me personally. The thought of a world where virtually every couple is unable to experience the joys of parenthood, particularly due to climate change, is quite distressing.

Moving on to a film based on tackling Climate Change. A double Oscar winning that brought this alarming topic to the masses; movie named, “An Inconvenient truth” by Al Gore is where there have been two very big changes and a third that occurred during the filming of the movie. The first is that unfortunately the climate-related extreme weather events have of course become far more common and more destructive ([theconversation.com/“an-inconvenient-truth-about-an-inconvenient-truth”](http://theconversation.com/an-inconvenient-truth-about-an-inconvenient-truth)). Mother nature is speaking up in a very persuasive way. The second big change is that the solutions are here now. A decade ago, you could see them on the horizon but you had to have the technology experts reassure you that they’re coming, that they’ll be here – well now they’re here. And for example, electricity from wind and solar has fallen so quickly in price that in many regions it’s much cheaper than electricity from fossil fuels and soon will be almost everywhere. Electric cars are becoming affordable. Batteries are now beginning to decline sharply in price which will be a real game-changer for the energy industry. LEDs and hundreds of new far more efficient technologies are helping to stabilize and soon reduce emissions.

While continuing to read more and researching on this, I hope that the complexity of climate change and the corresponding formal innovations of climate change fiction will provoke more debate about the methodological practices of literary criticism, particularly in the areas of ecocriticism, critical theory, and historicism. In short, the peculiar composite that is climate change as a meteorological, ecological, and cultural phenomenon demands, in its turn, a new literary and critical climate. I have tried to attempt to offer here a survey not just of how those demands have come to be, but of how they are being met and how they might continue to be addressed.

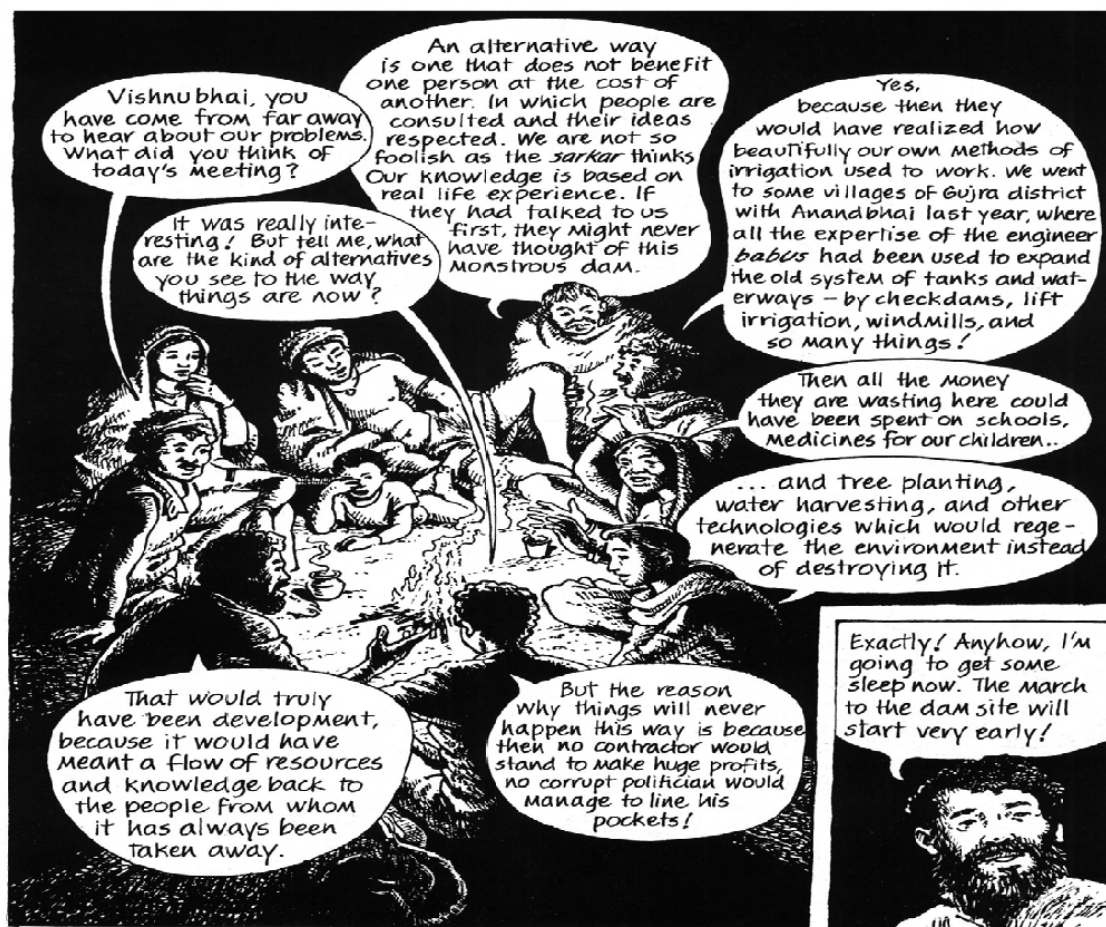
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for “our mountains are changing,” he tells them to wait for 4-5 days for him. The character of Malgu Gayan acts as the mythical creation who breaks the scientific reason as the only way to define and describe things. He portrays the belief that reality is more than what we can see and reason it to be. His songs are about the revered nature. The myths and tribal folktales from the North East clearly show the perception of nature as their guardian figure, as their resource to live, and their duty to preserve and sustain the resources that nature has given them.

As we talked about the memory of constant displacement and relocation of the Anishinaabe tribes, Relku’s story also talks about how her only memory is about dismemberment and eviction from her ancestral village where she grew and the scarred experiences that she had to face in the city and even back in her village that was destroyed due to the Dam construction. That is the memory which will be passed to generations after Relku. Relku’s self-sufficient life in her village has changed forever into a life of poverty in the cities, and her future generations will have to experience the same vicious cycle of oppression in the capitalist world devoid of a voice, their right to speak taken away. The abuse of the marginalized actively and passively is evident through Relku’s story. The third element is of voice which is the most transgressive tool possessed by the Adivasis, the women, the farmers, and every violated, marginalized community. The voice from the peaceful protests is so loud that it has the power to threaten the police, the government, the Industrialists, the *Sahibs*, so much so that they resort to violence to shut those voices. The newspaper *Voice* also plays as a catalyst to bring forth the news to the public all around the nation, initiating conversations about the construction, about the mass dislocation and undercompensated natives of the areas affected. The *Voice* and the voice of the protests also bring to the attention the amount of environmental devastation a single developmental project attempting to “modernize” can cause. Lastly, Sen uses the device of topographical representation of the course of the river Rewa which might not accurate in terms of longitude and latitude, however, gives the ecological and cultural perspective of the Rewa Valley and its strong connection with its people. The topographical map is drawn on a triple spread and it is beyond what a precise political map would manage to show. Sen rejects western cartography and paints a topographical map for us to truly understand the ecosystem, culture, and people of the Rewa Valley.

The last scene of the graphic novel “under the mahua tree” is a satire on capitalism and the fast lifestyle. The Politician being agitated while he looks at the Adivasi just lazing around doing nothing projects the capitalist mindset and the world’s obsession with continuous productivity. The Politician tells him to go and work and build his own business, employ workers to do work for him and then live a life of luxury, to which the Adivasi replies that he was already doing that anyway; the scene is a parody of the colonial conscious of exploitation of the others and Capitalism that supports and reproduces coloniality. The panels in the last scene shows the irony of moving in the capitalist economy without realising that we have become slaves to this vicious, oppressive cycle of work done equals money lured by the idea of having a “modern” lifestyle.



The above scene from the *River of Stories* is the most important commentary on the vitality of the tribal knowledge that has been ignored, subjugated, and silenced. The Adivasi men, women, and children sitting together in a circle (almost like those round conference tables

where the ‘VIPS’ sit and approve plans and projects of big infrastructures, roads, mills, dams etc,) put forth alternative ways in which everyone can co-exist together without destroying the other persons home, or family or take away anything from their livelihoods. It portrays the need of more Indigenous representation in the planning committees and incorporation of their knowledge systems to build a more sustainable order of living instead of a destructive and exploitative order. We can see the group talking about more environmentally sustainable methods like tree planting and water harvesting to fulfil the same purposes as a dam would and instead use the money and resources needlessly spent on the dam project in education, health, and other vital necessities of the common people. Thus, Orijit Sen’s *The River of Stories* through myth, memory, voice, and topography attempts to decolonize and seeks for the alternative sustainable way invested in the tribal and indigenous knowledge of nurture, preservation, and healing.

CONCLUSION:

I hope the paper fulfils the original intent of seeking the alternative way through literature and through the incorporation of knowledge, myths, and history of the indigenous people in the technology that promotes real progress and not devastation. And, no, I do not imply invading tribal people’s spaces once again, which colonisation and coloniality has already done. Rather the requirement is finding the midway to co-exist together while preserving our environment, trying our best to not destroy our Earth anymore and worsen the Climate crisis